

A Geographical Study of Changing Cropping Patterns in Bhandara District

Minakshi Ganesh Ladse, Research Scholar, Yashvantrao Chuhan College Lakhandur Dist. Bhandara

minakshiladse@gmail.com

Jagnnath Dadve, Guided, Principal Yashvantrao Chuhan College Lakhandur Dist. Bhandara

Abstract

Agriculture is an important occupation in Bhandara District of Maharashtra. Bhandara is well known for rice cultivation and is called the “Rice Bowl of Maharashtra.” Rice is the main crop of the district, but farmers also grow soybean, tur, wheat, sugarcane, pulses, cotton, turmeric, vegetables and other

The present research paper studies the changes in cropping patterns in Bhandara District. It looks at which crops are grown, where they are grown, and how their area has changed over time. The study also considers factors such as rainfall, soil, irrigation, market demand, agricultural technology and government schemes. Official district statistics and agricultural reports can be used to understand these changes.

Keywords: Bhandara, Agriculture, Cropping Pattern, Rice, Spatial Change, Temporal Change, Geography

Introduction

Cropping pattern means the way different crops are grown in a particular area. It includes the types of crops, their area and their distribution. Cropping patterns can change because of changes in rainfall, irrigation, soil, market prices, technology and government policies.

Bhandara District has favourable conditions for agriculture. Rice is the most important crop of the district. According to NABARD, other important crops include soybean, tur, sugarcane, wheat, pulses, oilseeds, turmeric, chillies and vegetables. Some farmers have also started growing cotton.

Therefore, studying changes in the cropping pattern is useful for understanding the changing agricultural conditions of Bhandara District.

Study Area

Bhandara District is located in the eastern part of Maharashtra. The district has an area of about **4,087 sq. km.** and includes six talukas: Bhandara, Tumsar, Mohadi, Pauni, Sakoli, Lakhani and Lakhandur. Agriculture is an important occupation in the district. The district has an average annual rainfall of about **1,439.8 mm.** It has alluvial and black soils in different areas. The district also has considerable irrigation facilities, which influence the choice of

Objectives of the Study

The main objectives of this study are:

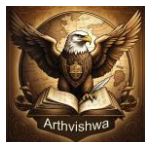
- To study the major crops grown in Bhandara District.
- To understand the cropping pattern of the district.
- To study changes in the area of major crops over time.
- To study differences in cropping patterns among different talukas.
- To identify the major factors responsible for changes in cropping patterns.
- To understand the changing importance of rice and other crops.

Data and Methodology

This study can be carried out mainly using primary & secondary data. Information can be collected from the District Statistics Department, agricultural department reports, NABARD reports and other government publications. The Bhandara District Administration provides District Social and Economic Review reports through its statistics Department.

The collected information can be arranged in tables and represented through:

- Tables
- Bar graphs
- Pie charts
- Line graphs
- Taluka-wise maps
- GIS maps



- Questionnaires

The area under different crops can be compared for different years to identify changes in the cropping pattern.

Major Crops of Bhandara District

Rice is the most important crop in Bhandara District. The district administration has also selected rice as one of its products under the One District One Product program. Bhandara is officially described as the "Rice Bowl of Maharashtra."

Other important crops include soybean, tur, wheat, sugarcane, pulses, oilseeds, turmeric, chillies, vegetables and cotton.

Thus, although rice is dominant, farmers are also cultivating several other crops.

Changes in Cropping Pattern

The cropping pattern of Bhandara District has changed over time. Earlier, farmers were strongly dependent on traditional paddy cultivation. More recently, some farmers have started growing crops such as turmeric, ginger, chillies, cotton and sugarcane. NABARD has specifically reported that a change from traditional paddy cultivation towards different crops is visible in the district.

For example, NABARD reported paddy cultivation on about **1,88,771 hectares in 2020–21**, while its 2023–24 profile reported about **1,78,768 hectares**. These figures come from different reporting years and should therefore be compared carefully, but they illustrate why a longer year-by-year study is useful.

Factors Affecting Cropping Pattern

Several factors influence the cropping pattern of Bhandara District.

Rainfall: Rice requires sufficient water. Changes in rainfall can influence rice cultivation and the choice of other crops.

Soil: Different soil types are suitable for different crops. Soil conditions therefore affect the distribution of crops.

Irrigation: Areas with better irrigation facilities can grow more crops and may cultivate crops other than traditional rain-fed crops.

Market: Farmers may change crops

according to market demand and prices.

Technology: Improved seeds, irrigation methods, fertilizers and modern farming techniques can influence crop selection.

Government Schemes: Agricultural schemes, crop insurance, training and other government programs can also influence farming practices. The district agriculture department implements programs related to crop productivity, soil and water conservation, horticulture, statistics and crop insurance.

Spatial Variation

Cropping patterns are not exactly the same in every part of Bhandara District. Different talukas have different soil, water availability, irrigation facilities and farming conditions. Therefore, the concentration of particular crops can vary from one taluka to another.

A geographical study can show these differences using **taluka-wise maps**. Such maps can help identify areas where rice is highly concentrated and areas where other crops are becoming important.

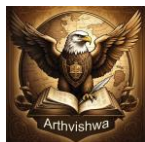
Temporal Variation

Temporal variation means changes over time. By comparing agricultural data from different years, it is possible to understand whether the area under rice, soybean, pulses, wheat, sugarcane or other crops has increased or decreased.

For example, NABARD's reports indicate that changes in cropping patterns are occurring in Bhandara, including increased interest in crops such as turmeric, ginger, chillies, cotton and sugarcane.

Analysis And Interpretation Of Data-

The analysis of the questionnaire will help to identify the spatial and temporal changes in cropping patterns in Bhandara District. The data can show whether farmers are continuing with traditional rice cultivation or moving towards crops such as soybean, pulses, wheat, sugarcane and other crops. Factors such as irrigation, rainfall, market prices, production costs, technology and government schemes can be examined to understand the reasons for these changes. The findings can be presented through percentage tables, bar graphs, pie



charts and taluka-wise maps to provide a clear geographical interpretation of the changing cropping pattern.

1. to know the Main Reason for Changing Crops I find out following information.

Sr. No.	Main Reason	No. of Respondents	Percentage
1	Availability of water	18	18%
2	Changes in rainfall	16	16%
3	Market prices	20	20%
4	Cost of production	14	14%
5	Soil conditions	8	8%
6	Government schemes	7	7%
7	Modern agricultural technology	10	10%
8	Availability of labour	7	7%
Total		100	100%

Sources: - Analysis Questionnaires

Interpretation

The above table shows the main reasons why farmers change their crops. Out of 100 respondents, 20% of farmers reported market prices as the main reason for changing their crops, which is the highest response. 18% of farmers identified availability of water as an important reason, while 16% reported changes in rainfall. 14% of farmers changed crops because of the cost of production. Modern agricultural technology influenced 10% of farmers, while soil conditions accounted for 8%. Government schemes and availability of labour were reported by 7% each. Thus, the responses indicate that market conditions, water availability, rainfall and production costs are important factors influencing changes in cropping patterns among the surveyed farmers.

02. to know the Main Source of Irrigation I find out following information.

Sr. No.	Main Source of Irrigation	No. of Respondents	Percentage
1	Well	28	28%
2	Borewell	32	32%
3	Canal	18	18%
4	Tank/Pond	12	12%
5	Rainfall	10	10%
Total		100	100%

Sources: - Analysis Questionnaires

Interpretation

The above table shows the main sources of irrigation used by the 100 surveyed farmers. Borewell is the main source of irrigation, reported by 32% of respondents. 28% of farmers depend on wells, while 18% use canal irrigation. 12% of respondents depend mainly on tanks or ponds, whereas 10% depend mainly on rainfall.

The data indicate that groundwater sources such as borewells and wells are important sources of irrigation for the surveyed farmers. A smaller proportion of farmers depend mainly on rainfall, indicating the importance of irrigation facilities for agricultural cultivation in the study area.

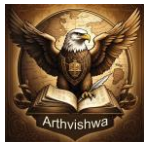
03. to know the Major Crops Grown at Present I find out following information.

Sr. No.	Major Crop	No. of Respondents	Percentage
1	Rice/Paddy	35	35%
2	Soybean	18	18%
3	Tur	12	12%
4	Wheat	10	10%
5	Gram	8	8%
6	Sugarcane	6	6%
7	Cotton	5	5%
8	Vegetables	4	4%
9	Other	2	2%
Total		100	100%

Sources: - Analysis Questionnaires

Interpretation

The above table shows the major crops currently grown by the surveyed farmers. Rice/Paddy is the dominant crop, reported by



35% of the respondents. Soybean is the second most commonly grown crop, accounting for 18% of respondents, followed by Tur (12%) and Wheat (10%). Gram is cultivated by 8%, while Sugarcane (6%), Cotton (5%), and Vegetables (4%) account for smaller proportions. Only 2% of respondents reported other crops.

04. to know the Changes in Rainfall During Recent Years I find out following information.

Sr. No.	Response	No. of Respondents	Percentage
1	Yes	72	72%
2	No	28	28%
Total		100	100%

Sources: - Analysis Questionnaires

Interpretation

The above table shows farmers' views regarding changes in rainfall during recent years. Out of 100 respondents, 72% of farmers reported that they had noticed changes in rainfall, while 28% reported that they had not noticed any significant changes. This indicates that a large proportion of the surveyed farmers perceive changes in rainfall patterns. Such perceived changes may influence agricultural planning and crop selection, particularly in areas dependent on rainfall for cultivation.

05 to know the Effect of Changes in Rainfall on Choice of Crops I find out following information.

Sr. No.	Response	No. of Respondents	Percentage
1	Yes	58	58%
2	No	24	24%
3	To some extent	18	18%
Total		100	100%

Sources: - Analysis Questionnaires

Interpretation

The table shows that 58% of the respondents stated that changes in rainfall have affected their choice of crops. 18% of farmers reported that rainfall changes have affected their crop

selection to some extent, while 24% stated that rainfall changes have not affected their choice of crops. Therefore, the responses suggest that changes in rainfall are an important factor influencing cropping decisions among the surveyed farmers.

06. to know the Influence of Market Prices on Choice of Crops I find out following information.

Sr. No.	Response	No. of Respondents	Percentage
1	Yes	65	65%
2	No	15	15%
3	To some extent	20	20%
Total		100	100%

Sources: - Analysis Questionnaires

Interpretation

The table shows that 65% of the respondents stated that market prices influence their choice of crops. 20% of farmers reported that market prices influence their crop selection to some extent, while 15% stated that market prices do not influence their choice. The results indicate that market prices are an important economic factor affecting cropping decisions among the surveyed farmers. Farmers may prefer crops that provide better market returns and stable demand.

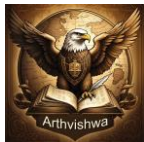
07. to know the Effect of Increasing Production Costs on Cropping Pattern I find out following information.

Sr. No.	Response	No. of Respondents	Percentage
1	Yes	62	62%
2	No	38	38%
Total		100	100%

Sources: - Analysis Questionnaires

Interpretation

The table shows that 62% of the respondents have changed their cropping pattern because of increasing production costs, while 38% have not changed their cropping pattern for this reason. The findings indicate that rising costs of seeds, fertilizers, pesticides, labour, irrigation and other agricultural inputs can influence farmers' decisions regarding crop selection. Thus, increasing production costs are an important factor in the changing



cropping pattern of the surveyed farmers.

08. to know the Influence of Modern Agricultural Technology on Growing New Crops I find out following information.

Sr. No.	Response	No. of Respondents	Percentage
1	Yes	68	68%
2	No	32	32%
Total		100	100%

Sources: - Analysis Questionnaires

Interpretation

The table shows that 68% of the respondents stated that modern agricultural technology has encouraged them to grow new crops, while 32% stated that it has not influenced their crop selection. The findings indicate that modern technology, such as improved seeds, modern irrigation methods, farm machinery and improved cultivation practices, can encourage farmers to adopt new crops and contribute to changes in the cropping pattern.

09. to know the Effect of Improved Seeds on Crop Production I find out following information.

Sr. No.	Response	No. of Respondents	Percentage
1	Yes	64	64%
2	No	16	16%
3	To some extent	20	20%
Total		100	100%

Sources: - Analysis Questionnaires

Interpretation

The table shows that 64% of the respondents reported that improved seeds have increased their crop production. 20% stated that improved seeds have increased production to some extent, while 16% reported no increase. The findings indicate that the use of improved seeds has contributed to higher crop production for a large proportion of the surveyed farmers and may also encourage changes in crop selection and cultivation practices.

Conclusion

The present study, “A Geographical Study of Changing Cropping Patterns in Bhandara District,” shows that agriculture in Bhandara District is gradually changing. Rice/Paddy continues to be the major crop, but farmers are also cultivating soybean, tur, wheat, gram, sugarcane, cotton and vegetables. This indicates a gradual diversification of the traditional cropping pattern.

The analysis of the survey data shows that several factors are responsible for these changes. Market prices, availability of water, changes in rainfall and increasing production costs are important factors influencing farmers' crop choices. Modern agricultural technology and improved seeds have also encouraged many farmers to adopt new crops

and improve production. The survey indicates that a large proportion of farmers have noticed changes in rainfall, and many have changed their crop selection because of these changes.

The study also shows that irrigation plays an important role in agricultural development. Wells and borewells are important sources of irrigation among the surveyed farmers. Better irrigation facilities provide farmers with greater opportunities to cultivate different crops.

Overall, the cropping pattern of Bhandara District is influenced by a combination of physical, economic and technological factors. Rice remains an important part of the agricultural landscape, while the cultivation of other crops reflects increasing diversification. Better irrigation facilities, access to quality seeds, improved agricultural technology, market facilities, crop insurance and suitable government support can help farmers manage changing agricultural conditions. Thus, the study provides a geographical understanding of the changing nature of agriculture and cropping patterns in Bhandara District.

Bibliography

1. District Administration, Bhandara, Government of Maharashtra. District Socio-Economic Review. Bhandara: Statistics Department.
2. District Administration, Bhandara, Government of Maharashtra. District Statistical Abstract. Bhandara: Statistics Department.
3. National Bank for Agriculture and Rural Development (NABARD). Potential Linked Plan 2023–24: Bhandara District. Mumbai: NABARD.
4. Directorate of Economics and Statistics, Government of Maharashtra. Agricultural Statistics of Maharashtra. Mumbai: Government of Maharashtra.
5. Department of Agriculture, Government of Maharashtra. Agricultural Development and Crop Statistics. Mumbai: Government of Maharashtra.
6. Government of India, Ministry of Agriculture and Farmers Welfare. Agricultural Statistics at a Glance. New Delhi: Government of India.
7. Census of India. District Census Handbook: Bhandara, Maharashtra. New Delhi: Office of the Registrar General and Census Commissioner, India.
8. Krishi Vigyan Kendra, Bhandara. District Agricultural Profile and Agricultural Information. Bhandara.
9. Government of Maharashtra. Bhandara District – One District One Product: Rice. Bhandara District Administration.