

Aayushi International Interdisciplinary Research Journal (AIIRJ)

Peer Reviewed And Indexed Journal

ISSN 2349-638X

SJIF Impact Factor 8.379

Website: www.aiirjournal.com

Theme of Special Issue

‘Exploring Pillars for Viksit Bharat-2047’

(Special Issue No.159)

Chief Editor

Principal, Dr. Gurunath Fagare

Dr. Pramod Tandale

Executive Editor

Miss. Dipali H. Chavan

No part of this Special Issue shall be copied, reproduced or transmitted in any form or any means, such as Printed material, CD – DVD / Audio / Video Cassettes or Electronic / Mechanical, including photo, copying, recording or by any information storage and retrieval system, at any portal, website etc.; Without prior permission.

Aayushi International Interdisciplinary Research Journal

ISSN 2349-638x

Special Issue No.159

Feb.2026

Disclaimer

Research papers published in this Special Issue are the intellectual contribution done by the authors. Authors are solely responsible for their published work in this special Issue and the Editor of this special Issue are not responsible in any form.

Editorial Board

- 1) Miss. Dipali H. Chavan**
- 2) Dr. Shivaji R. Tate**
- 3) Dr. Anand G. Ghorpade**
- 4) Dr. Rajesh S. Gavit**
- 5) Dr. Bhimashankar M. Birajdar**
- 6) Mr. Rajendra S. Jaykar**
- 7) Mr. Sandip A. Patugade**
- 8) Miss Archana S. Kadam**
- 9) Miss Pooja Indalkar**

From the Principal's Desk



It gives me immense pleasure and pride to publish the proceedings of the National Conference on ***“Exploring Pillars for Viksit Bharat 2047.”*** This conference has provided a valuable academic platform for academicians, researchers, and information professionals to deliberate on the changing role of different contributors to the development of the nation and achievement of the objectives.

The National Conference on “Exploring Pillars for Viksit Bharat- 2047” is a visionary platform aimed at fostering dialogue, innovation, and collaboration to realize the goal of a Developed India by 2047. The conference brought together policymakers, academicians, industry leaders, entrepreneurs, students, and civil society to deliberate on transformative strategies for inclusive, sustainable, and technology-driven national growth.

This national conference successfully addressed contemporary issues, recent trends, and challenges and role of various sectors in achieving objectives of Viksit Bharat. Through keynote addresses, panel discussions, paper presentations, and interactive sessions, the conference paved way to generate actionable insights and policy-oriented recommendations for nation-building. Let this conference serve as a catalyst for ideas that empower our citizens, strengthen our institutions, and contribute to building a prosperous and self-reliant India.

I extend my sincere appreciation to the Editor, Miss Dipali Chavan for her dedicated efforts in bringing out this conference issue. I also congratulate the organizing committee, reviewers, authors, and all contributors for their academic involvement and commitment towards the success of this conference.

I am confident that this publication will serve as a valuable reference source for researchers, students, and professionals in the field of Commerce and Management and Social Sciences . I wish the journal every success and hope it will inspire further research and innovation in the field and Vision of Viksit Bharat-2047.

Dr. Gurunath Fagare
Principal

Kisan Veer Mahavidyalaya, Wai

From the Editorial Desk



We are pleased to present this special issue of the journal dedicated to the National Conference on “*Exploring Pillars for Viksit Bharat 2047*”, organized by the Department of Commerce and Management, BCA, and Psychology, History, Political Sciences, Economics in association with IQAC. This issue provides a platform for academicians, researchers and information professionals to share their research findings, experiences and innovative practices related to the application for “*Exploring Pillars for Viksit Bharat 2047*”.

This enthusiastic participation of academicians, researchers, and scholars across the nation reflects the collective intellectual commitment towards contributing to the vision of Viksit Bharat 2047 — a developed, self-reliant, and globally competitive India. The research papers submitted cover diverse dimensions such as economic growth, sustainable development, digital transformation, governance, reforms, social empowerment, innovations, and entrepreneurship. Each contribution adds meaningful insight into the structural and strategic pillars required to achieve the national vision of Viksit Bharat.

As Chief Editor, I sincerely appreciate the dedication of all authors, reviewers, members of the organizing committee, and IQAC for maintaining academic rigor and quality throughout the review and publication process. The success of this conference is a testament to our institution’s commitment to fostering research culture, interdisciplinary dialogue and academic excellence.

I sincerely appreciate the valuable contributions made by the authors, whose scholarly papers have enriched the knowledge and added literature through this journal issue. I am also grateful to the reviewers and editorial board members for their critical evaluation and constructive suggestions, which helped maintain the academic quality of the publication. Special thanks are due to the organizing committee and all contributors who worked tirelessly for the successful completion of this conference journal.

My personal gratitude goes to the eminent personality Hon’ble. Dr. Deepak Karanjikar Advisor, Viksit Maharashtra, Government of Maharashtra who had accepted our invitation as Chief Guest of Inaugural Function and Keynote Speaker, shared his views and ideas. Dr. Parashram Patil, Advisor, Viksit Maharashtra, Government of Maharashtra had accepted our invitation as Resource Person and Dr. Major Ashok Giri, Principal A.S.S.M, Medha for sharing their valuable views in Valedictory function.

We owe our sincere thanks to Hon’ble Shri. Madandada Bhosale, President, Janata Shikshan Sanstha, Wai who is the constant source of inspiration and driving force behind the execution of innovative ideas. We are thankful to secretary Hon’ble. Dr. Jayawant Chaudhari for his kind support in the venture. I express my gratitude to Hon’ble. Principal Dr. Gurunath Fagare for his constant support. The organizing committee member also contributed a lot for the success of the Conference. The said conference would not have been successful without cooperation and support of the faculty, library staff and administrative staff. I thank all of them for their kind support and cooperation.

I am confident that this issue will serve as a useful source of knowledge and inspiration for professionals, researchers and students. I hope it will encourage further research and innovation, contributing to the continuous development of Viksit Bharat in digital era.

Editor

Miss Dipali Chavan

Assistant Professor Department of Commerce and Management

Kisan Veer Mahavidyalaya, Wai

Sr. No.	Name of the Author	Title of Paper	Page No.
Vol. 01			
1.	Mrs. Prachi Tushar Raut, Prof.Dr. Sarang Shankar Bhola	A Study on Work Life Balance And Employee Performance in Manufacturing Sector in Satara	1
2.	Dr. Malatesh B Nagalapur	A Study on Consumer Behaviour on The Purchase of Gadgets on The Online Platforms in Haveri City of Karnataka	6
3.	Miss.Patil Amruta Ashok, Dr. G. J. Fagare	A Study of Government Initiatives for Artisans in Kolhapur District	12
4.	Dr. Sarjerao Sadashiv Chile	The effect of Skill Development Programs on the youth employability in India: A case study of Karad Tehsil	17
5.	Mrs. Snehal Amey Desai, Dr. Amey Atmaram Desai	Digital Transformation in Governance: Opportunities and Challenges	24
6.	Dr. Rajeshkumar P. Chetiwal	Impact of Rise in Securities Transaction Tax (STT) After Budget 2026	27
7.	Dr.Ms.Sulakshana V. Chavan	Role of AI Technology in Banking Sector	32
8.	Dr. Sandhya S. Jadhav	Startups and Entrepreneurship Developments in Viksit Bharat: Drivers, Challenges, and the Road to 2047	35
9.	Dr. Ashwini Tanaji Kamble	Role of Intermediaries in Strengthening the Tourism Sector	42
10.	Dr. Netaji Dnyanu Dabade	Impact of Awareness and Satisfaction of Digital Payments on Financial Inclusion in India	51
11.	Mrs. Sujata Chandrashekhar Bhasme	Economic Role of MSMEs and Start-ups in India: Challenges, Growth, and the Vision of Viksit Bharat 2047	55
12.	Mr.Ganesh Ramesh Vaske	Role of Commerce and Trade in Achieving Viksit Bharat-2047	61
13.	Miss. Dipali Hindurao Chavan Prof.(Dr) T. D. Mahanwar	A Study of Contract Farming Agreements and Their Implications on Poultry Growers	64
14.	Miss. Borate Jyotsna Pandurang	Study of Fintech in India	68

Sr. No.	Name of the Author	Title of Paper	Page No.
15.	Dr. Sandeep Salunke	Fortified Financial Architectures: Structural Reforms as Institutional Bedrock for Viksit Bharat 2047	74
16.	Mr. Charudatta D. Gunde, Mrs. Mayra Charudatta Gunde	Future of The Indian Education System in India 2047: Skills Over Degrees	78
17.	Mr. Sandip Anandrao Patugade, Mr. Ravindra Suresh Jamdade	Agro-Tourism and Its Role in Achieving the Vision of Viksit Bharat 2047	81
18.	Dr. G. J. Fagare, Mr. Charudatta D. Gunde	Artificial Intelligence (Ai) Integration In Statutory Welfare Facilities Under The Factories Act, 1948: A Legal, Operational, And Technological Inquiry	84
19.	Keerti Reddy, Dr Basavaraj S. Kudachimath	A Study on Customer Perception towards E-Banking Services in Vikshit Bharat	87
20.	Dr.Vinod Hanumant Awaghade	Role of E-Commerce in Present Era	93
21.	Mrs.Vaishali Rajpure, Dr. Ranjana Shinde	A Critical Analysis of Challenges Faced by Agro-Food Processing Units in Accessing Government Subsidies in Satara District	96
22.	Smt. Patil Dipali Sambhaji	Gender Justice in India's Vision of Viksit Bharat 2047	103
23.	Mr. Jaywant Yadavrao Pawar, Dr. Thomson Varghese	Analysis of Marketing Strategies of Food Processing Units in Satara district: A Balanced Scorecard Approach (A study with special reference in Wai, Khandala, Jaoli Tehsil)	107
24.	Mr.Jitendra Dattatraya Chavan, Prof. Dr. Amardeep Dattatraya Jadhav	A Study on E-Commerce, E-Banking and Digital Financial Transformation in India	113
25.	Mr. Mansur Balisha Shikalgar, Prof. (Dr.) T. D. Mahanwar	An Analytical Study of Growth Performance and Economic Significance of the Animal Husbandry Sector in India	117
26.	Dr. Maruti Sambhaji Wagh	The current scenario in Livestock Trading with special reference to Maharashtra state	122
27.	Mr. Rajesh Raghunath Nadhale, Dr. G. A. Jagtap	An Analytical study of Role of Cooperation of Rural youth in Viksit Bharat Towards Electronic Retailing	126

Sr. No.	Name of the Author	Title of Paper	Page No.
28.	Mr. Lakhan Jaiprakash Lohiya, Dr. Eknath Balu Khedkar	Green Practices and Its Impact on ESG Performance: A Study of IT Organizations in the Pune Region	133
29.	Smt. Chavan M. M.	Role of Human Resource Development in Viksit Bharat	143
30.	Mr. Ravindra Suresh Jamdade, Dr.E. B. Khedkar, Mr. Sandip Anatarao Patugade	Problems of Agro-Processing Units on Farmers with reference to Wai Taluka	147
31.	Adv. Vivek Vishwanath Bongale	Social Media, Digital Platforms and Financial Sustainability of Photography Businesses: Emerging Commerce Trends toward Viksit Bharat-2047	151
32.	Miss Tejashri Tanaji Bokephode	A Study on Quality of Work- Life and Economic Empowerment among Domestic Women Workers in Satara District	156
33.	Tushar A. Patil	Impact of Digital Governance Initiatives on Citizen Satisfaction and Economic Participation: An Empirical Study in Kolhapur District in the Context of Viksit Bharat-2047	161
34.	Miss. Shruti Shrikant Yadav	A Strategic Analysis of the Brand War Between Parachute (Marico) and Nihar Coconut Oil (HUL) in the Indian Coconut Oil Market	165
35.	Prof. Gujar Kishor Shivaji, Vishal Suryakant Kamble	Role of Human Resource Development in Viksit Bharat	168
36.	CA Pravina Nitin Oswal	Financial Systems and Economic Reforms as Foundational Pillars of Viksit Bharat 2047: A Strategic and Practitioner-Led Analysis	172
37.	Mr. Kiran Prakash Menkudale	Digitalisation of E-Commerce and E-Banking in the Vision of Viksit Bharat: An Analytical Study	175
38.	Miss. Pooja Vijay Indalkar	The Study of Analysis of the Investors Attitude, Preferences and satisfaction Level Towards Investment in Satara District	179
39.	Ms. Landge Seema Eknath	A Study on Growth and Challenges of Women Entrepreneurship in Maharashtra	182
40.	Mr.Hambirrao B. Yewale Dr. Nasrin P. Khan	Human Resource Development as a Strategic Pillar for Achieving the Vision of Vikasit Bharat	187

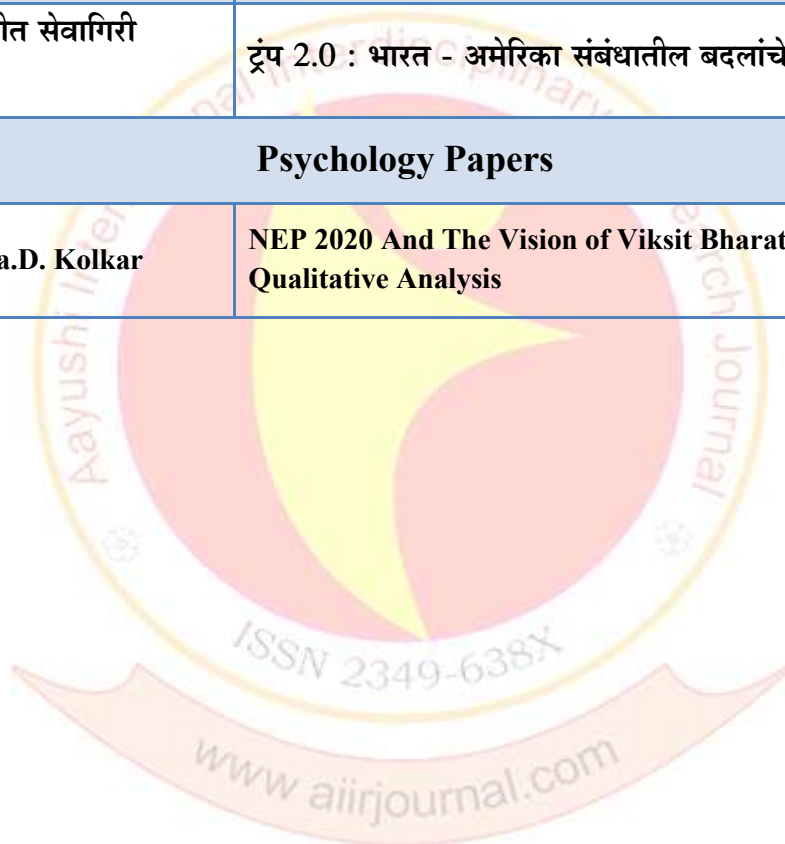
Sr. No.	Name of the Author	Title of Paper	Page No.
41.	Prof. Shivani Sudhakar Bobade	E-Business and Global Business Transformation: The Role of Quick Commerce in Achieving Viksit Bharat 2047	193
42.	Miss.Kayanat Anwar Shaikh, Mr. Jaywant Pawar	Impact of Jal Jeevan Mission on society: A comparative study of Wai, Khandala, Mahabaleshwar Tehsils in Satara District	198
43.	Mr. Gaikwad Pradip V.	Study of “Viksit Bharat 2047” And Its Impact on Indian Industries	204
44.	Dr.Pratibha Chikmath	Approach and Perspectives of Tourism in Maharashtra	207
45.	Prof. Pratik Sadanand Sawant	E-Commerce and E-Banking Digitalisation as Pillars of Viksit Bharat 2047	210
46.	Mrs. Ranjana Rahul Bagal	Startup and Entrepreneurship Development under Union Budget 2026: A Policy Analysis	214
47.	Mrs.Ranjita Girish Mhaskar, Dr. Prof.Anil Shankar Patil	Sustainable Development through Kaizen: A Case Study on the Elimination of Face Flange Shrinkage in the Casting Process at ABC Industries	218
48.	Mr. Ravindra Suresh Jamdade Dr. E. B. Khedkar	To study the impact on farmers income and standard of living	224
49.	Dr. (Mrs.) S. R. Nakate	Sustainable Agricultural Practices for Viksit Bharat @ 2047	229
50.	Mrs. Shital Abhijeet Bhilare	A Study of E-Banking Digitalization And Its Role in Viksit Bharat 2047	233
51.	Mr. Shrikant Anil Lohar	A Study on the Role of SHGs in Skill Development and Employment Generation	237
52.	Miss Gouri Jagannath Sakate	The Effectiveness of Corporate Social Responsibility Initiatives	242
53.	Miss Rekha Hanmant Bhosale	Empowering MSMEs through Digital Marketing for Viksit Bharat 2047	245
54.	Dr. (Mrs.) Snehal Shital Chougule	Digital Payments as the Backbone of E- Commerce and E-Banking in Viksit Bharat with Special Reference to Jaysingpur City	249
55.	कु. जान्हवी दीपक भिसे	चक्रीय अर्थव्यवस्था (पुनर्निर्मिती, पुनर्वापर ,दुरुस्ती)	256

Sr. No.	Name of the Author	Title of Paper	Page No.
Vol. 02 (BCA Papers)			
56.	Miss. Aarti . S .Sakunde	The Cybersecurity Dilemma in Smart Homes and IoT Networks	261
57.	Archana Vikram Chavan	Blockchain and Distributed Ledger Technology: Architecture, Applications and Security Challenges – A Comprehensive Review	265
58.	Prof. Komal Dadasaheb Choudhari	Artificial Intelligence and Data Science	269
59.	Suryawanshi Megha Vishwanath	Edge Computing for Sustainable IoT Systems in Smart Cars	273
60.	Mr. Swapnil B. Khandagale, Dr. Samiksha V. Nikam	Artificial Intelligence and Data Science as Pillars of Viksit Bharat @2047	277
61.	Prof. Ms. Shital Rangrao Sawant	Cyber Security	283
62.	Ms. Nikita Nitin Gaikwad, Ms. Shweta Nitin Gaikwad	Governance, Digital Infrastructure, and Cybersecurity: Pathways to Viksit Bharat @2047	288
63.	Miss.Gaikwad Purnima Vilas	Blockchain and Distributed Ledger Technology	293
64.	Mrs.Kadam Archana Shrikant	Sustainable Development Through Smart Technologies	296
65.	Miss. Shradha S. Chaudhari	Emerging Cyber Security Threats and Defense Mechanisms	299
66.	Miss. Saniya Ashpak Kazi	Cyber Security Challenges and Preventive Measures in Digital Infrastructure	302
67.	Mrs.Sumedha Mandar Taru, Dr. Mandar Dattatray Taru	Startups and Entrepreneurship Development for Viksit Bharat	305
Economics Papers			
68.	Dr. R. S. Gavit	Green Banking in India: Sustainability Implications for the Modern Financial Sector	309
69.	Dr. Prema Arum Yadav	Waste Management through the 3R Principle: A Circular Economy Approach	313

Sr. No.	Name of the Author	Title of Paper	Page No.
70.	Miss.Megha Milind Ghamare, (Pro) Dr. S. S. Potbhare	Green Finance For Sustainable Spices Crops in India	318
71.	Dr. Mehtre Nilesh Madhukar, Mr.Chourasiya Shubham V.	A Study on Impact of Secondary Sector on Economic Development in India	326
72.	Dr. Nirmala M. Talape	AI-Driven Governance vs Democratic Accountability An Institutional Assessment of Algorithmic Decision-Making in India	331
73.	Mrs. Megha Prashant Shirke	Organic Farming: Benefits and Challenges	335
74.	Miss.Ayesha Shaikh	Climate Change and Its Economic Impact on India	340
75.	Miss.Vaibhavi K. Sable, Ganesh M. Sathe	A Temporal Analysis of Rainfall Variability And Crop Production Patterns in Ahilyanagar District	343
76.	Mr.Pathan Rajukhan Magbul	Circular Economy And Artificial Intelligence	350
77.	Mr.Sarvesh Nandakumar Jagtap	Circular Economy: The 4R	355
78.	Miss. Saniya Ashpak Kazi, Mrs. Megha Prashant Shirke	Green Jobs and Emerging Employment Opportunities in India: Challenges and Future Prospects	360
79.	Miss.Siddhi Ghodke , Miss.Srushti Kenekar	Closing the Loop, Cooling the Climate: Circular Economy as India's Economic Bridge between SDG 12 and SDG 13 under Viksit Bharat 2047	364
80.	Dr. Amarveli Balasaheb Patil	Agriculture Reforms and Rural Empowerment: A Comparative Study	369
81.	डॉ. विजय शंकर शिंदे	शाश्वत विकास उद्दिष्टे (SDGs) आणि भारताची प्रगती (Achievements of India)	371
82.	डॉ. मंगल नागोराव मारकड	भारतातील शाश्वत विकासाची उद्दिष्टे	378
83.	प्रा.एम.एन.मंगवडे	संसाधन व्यवस्थापनातून शाश्वत विकासाची दिशा	383
84.	कु.रेश्मा चांगदेव निकम	शाश्वत विकास ध्येय ५ च्या पूर्ततेत जननी सुरक्षा योजनेची भूमिका	390
85.	डॉ.मनिषा सुरेश पवार	महाराष्ट्र राज्यातील सेंद्रिय शेतीच्या क्षेत्र आणि उत्पादनाचा अभ्यास	393

Sr. No.	Name of the Author	Title of Paper	Page No.
Geography Papers			
86.	Mr. Sagar Sharad Khatal	Assessment of Land Use Land Cover Change Detection of Karad Tehsil Using GIS Techniques	398
87.	Mrs. Manisha Shewale, Prof. (Dr.) Vinod R. Veer	Crop Combination Pattern in Satara District of Maharashtra	404
88.	Dr. Vinod Pawar, Dr. Pravin Jadhav	Recent Advancements in Geographical Research	413
89.	Mr. Mahadev Balu Chavan, Dr. Vijay D. Gaikwad	Occupational Structure and Occupational Distribution: A Study of Lohar Community in Satara District of Maharashtra	416
90.	Dr. Sandip Arjuna Patil, Patil Prajakta Ravindra	A Geographical Study of Road Density in Kolhapur District of Maharashtra State India	421
91.	Dr Pravinchandra D. Bhakare, Prof. (Dr.) Snehal M. Rajhans, Mr. Santosh S. Kamble	A Geographical Review of Wheat Productivity in India	429
92.	Dr. Nitin Vinayak Gaikwad	Comparative Analysis of Pre, During and Post-Flood Water Quality of the Krishna River at Sangli Using WQI	436
93.	हाके तानाजी रामचंद्र	लोणंद कृषिउत्पन्न बाजारसमितीमध्ये शेतमाल विकणाऱ्या शेतकऱ्याच्या समस्याचा भौगोलिक अभ्यास	440
History Papers			
94.	Dr. Bhimashankar M. Birajdar	Global Climate Change and Vision <i>Viksit Bharat</i> : Challenges and Developmental Alternatives	449
95.	डॉ. अजितकुमार दादासो जाधव	विकसित भारतासाठी पर्यटनाचे दृष्टिकोन	455
96.	श्री. सागर हरिचंद्र एडके	विकसित भारतासाठी कृषी क्षेत्राचे महत्त्व	459
97.	डॉ. सुनीता हनुमंतराव गीते	स्थानिक खाद्यसंस्कृतीचा इतिहास	464
98.	विनायक केरबा कांबळे	विकसित भारत: डॉ. बाबासाहेब आंबेडकर यांचे योगदान आणि महत्त्व	467
99.	सुधिर शिवाजी लोहार	स्वतंत्र भारतातील शारीरिक शिक्षण व भारतीय सुवर्ण महोत्सव (२०४७) पर्यंतचा शारीरिक शिक्षणाचा अभ्यास	471

Sr. No.	Name of the Author	Title of Paper	Page No.
Political Science Papers			
100.	Mr. Jayvant Babaso Khot Mr. Rajendra Sharad Jaykar	Challenges Before Teachers in Transforming Higher Education Through NEP 2020	476
101.	Mr. Nikhil Suhas Raut	UGC's Equity Regulations : A Step Towards Social Inclusion	480
102.	सूरज सतीश यादव	स्थानिक स्वराज्य संस्थांचे विकसित भारतातील योगदान विकसित भारत २०४७ च्या दृष्टीने	484
103.	श्री. अभिजीत सेवागिरी गोसावी	ट्रंप 2.0 : भारत - अमेरिका संबंधातील बदलांचे विश्लेषण	488
Psychology Papers			
104.	Miss Pooja.D. Kolkar	NEP 2020 And The Vision of Viksit Bharat: A Qualitative Analysis	492



Crop Combination Pattern in Satara District of Maharashtra**Mrs. Manisha Shewale*1**

Research Student,
Department of Geography,
Chhatrapati Shivaji College, Satara
A Constituent College of Karmaveer Bhaurao Patil University, Satara
manishabhosale221987@gmail.com

Prof. (Dr.) Vinod R. Veer *2

Professor and Head
Department of Geography,
Kisan Veer Mahavidyalaya, Wai
vinodrveer@gmail.com

Abstract:

This paper explores the agricultural land use patterns of the Satara district in Maharashtra, using Doi's Method (1959) for crop combination analysis. Using tehsil-level data for the year 2015-16, this paper established a distinct spatial gradient of crop diversification, which varies from a two crop specialization in the eastern (Mahabaleshwar Tehsil) and western (Man Tehsil) periphery to a complex seven crop combination in the central fertile plains of river Krishna and its tributaries. Man and Mahabaleshwar tehsils are the least diversified, which are dominated by climate-specific staples. Man has a two crop combination of Bajara and Jowar. Similarly Mahabaleshwar has combination of Rice and Corn. On the other hand, the Karad and Satara tehsils are most diversified agricultural regions, which combine cash crops such as Sugarcane, Onion, and Tomato with traditional oilseeds. This paper establishes that irrigation infrastructure and soil type are the main determinants of crop diversification in the region.

Keywords: Crop Combination, Crop Ranking, Agriculture, Crop Cultivation; GIS Mapping, Tehsil-wise Analysis

Introduction

Agriculture is the prime economic activity in the Satara district of Maharashtra. 50.88% of the population in Satara district is engaged in agricultural activities. District has rainy and mountainous areas of the Western Ghats in the west to the semi-arid and drought-prone areas in the east. This climatic and physiographic condition leads to spatial variability in agricultural patterns. It is very essential to understand the adaptation strategies used by farmers in these different agro-climatic zones from regional planning point of view. To understand the integrated socio-economic and environmental aspects of a region crop combination analysis technique is widely used in Agricultural Geography. Single crop indicates specialization while combination of crops helps for risk-minimization in agriculture. Doi's Statistical Method (1959) is used in present study to identify the crop combination regions of Satara district. It provides a scientific framework for understanding the intensity of land use and agricultural diversification in the eleven tehsils of Satara.

Study Area

Satara District is situated in the western part of Maharashtra State, in India. District covers vital portion of the larger region of the Deccan Plateau. Satara District is located between 17°05' North to 18°11' North latitude, and between 73°33' East and 74°54' East longitude. Satara district is surrounded by Pune District to its north, Solapur District to its east, Sangli District to its south, and Ratnagiri to its west. Overall, it has a geographical area of 10,480 square kilometers. Satara District have varied types of topography, with ranges of Western Ghats (Sahyadri Mountains) in the west, hills and forests, and plateaus in the east. The district has well-developed river systems with rivers like Krishna, Koyna, Venna, Yerla, and Man, which play an important role in irrigation and development of agriculture. There are dams like Koyna, Dhoni and Kanehr, which offer irrigation services to various tehsils. The climate of the district ranges from high rainfall zones in the western hilly areas of Mahabaleshwar, Jaoli and Patan tehsil, to semi-arid conditions in the eastern tehsils of Man, Khatav, and Phaltan. The western areas receive heavy rainfall during the monsoon season, whereas the eastern areas experience minimal and uncertain rainfall. Soils throughout Satara District vary from region to region. The eastern plateau region comprises black cotton soils, whereas the western hilly region consists of lateritic and red soils. Farming is the main livelihood, with Jowar, Bajra, Rice,

Wheat, Sugarcane, Soybean, Gram, and Groundnut forming the core crops. Varied topography, unequal distribution of rainfall, different soil types, and variation in irrigation potentialities in Satara district results in spatial diversity in crop patterns.

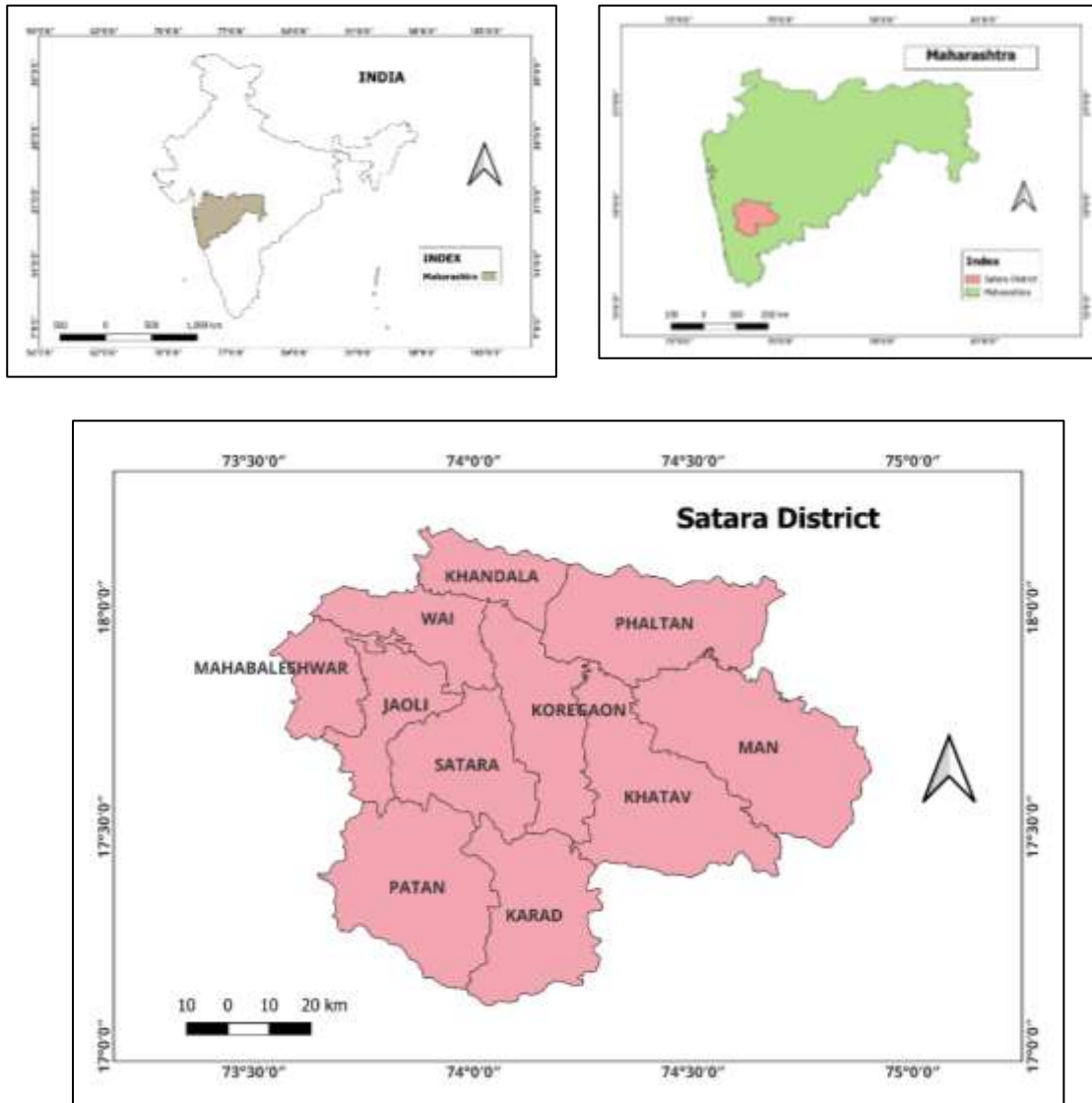


Fig. No.1: Location Map of Study Area

Objectives:

1. To identify and rank the major crops grown in different tehsils of the Satara District.
2. To identify crop combination regions in Satara District.

Methodology:

The present study utilizes the crop combination method developed by Doi (1959). This technique is an improvement over Weaver's (1954) method. Doi simplified the process by introducing a Critical Value Table to identify crop combination.

Data Processing and Ranking

The primary data for the year 2015-16 is collected from the Socio-Economic Abstract of Satara District. The area under each crop is converted into a percentage of the total gross cropped area of the tehsil. Crops are arranged in descending order based on their percentage share to find out ranking of various crops. Doi's method seeks to find the combination where the sum of squared differences is the lowest. However, the actual application involves checking the cumulative percentage of ranked crops against Doi's One-Sheet

Table of Critical Values. If that crop's percentage is higher than the critical value found in Doi's table (based on the sum of the percentages of the preceding crops), that crop is included in the combination.

First Rank Crop

Table No. 1: First Rank Crop in Satara District			
Tehsil	Crop	Area (Hector)	Percentage Share of Cropped Area
Mahabaleshwar	Rice	7660	39.91
Wai	Jowar	10106	24.58
Khandala	Jowar	14720	33.09
Phaltan	Jowar	22998	36.64
Man	Bajara	64762	56.64
Khatav	Bajara	33286	27.91
Koregoan	Jowar	25682	25.30
Satara	Soyabean	19967	26.02
Jaoli	Jowar	12142	33.14
Patan	Corn	12256	17.03
Karad	Sugarcane	37111	32.28

Source: Computed by Researcher

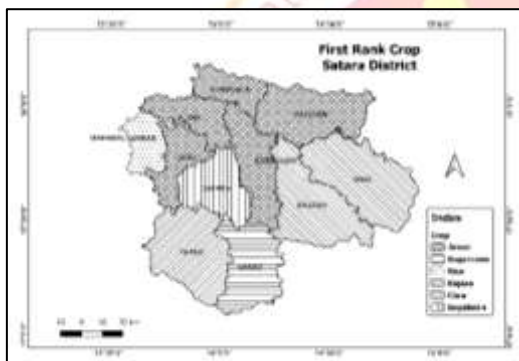


Fig. No. 2



Fig. No. 3



Fig. No. 4



Fig. No. 5

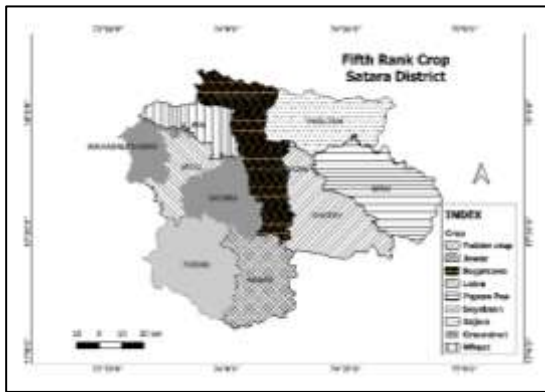


Fig. No. 6

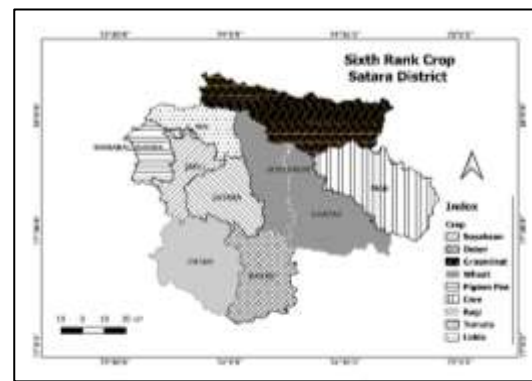


Fig. No. 7

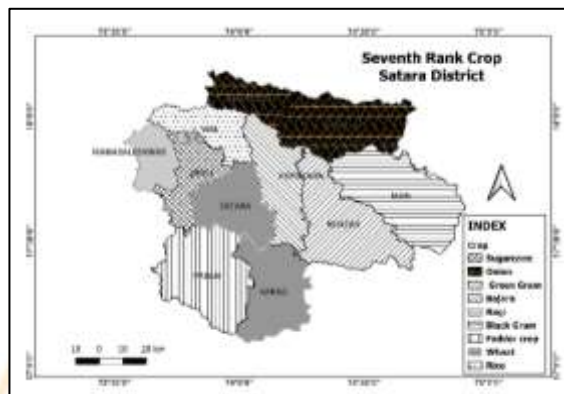


Fig. No. 8

The Fig. No. 2 shows the first-rank crops in each tehsil of Satara district based on their percentage share of cropped area. Jowar is ranking first in Wai, Khandala, Phaltan, Koregaon, and Jaoli tehsils. Bajara shows strong dominance in Man (56.64%) and Khatav tehsils, indicating specialization in drought-prone areas. Rice rank first in Mahabaleshwar tehsil due to high rainfall conditions. Commercial crop Soyabean rank first in Satara, Corn in Patan, and Sugarcane in Karad tehsils. Dominance of commercial crop reflects better irrigation and favorable agricultural infrastructure. Overall, the pattern shows that rainfall and irrigation availability have strongly direct influence on crop dominance across the district.

Table No. 2: Second Rank Crop in Satara District

Tehsil	Crop	Area (Hector)	Percentage Share of Cropped Area
Mahabaleshwar	Corn	5860	30.54
Wai	Soyabean	7380	17.95
Khandala	Gram	13098	29.44
Phaltan	Wheat	12452	19.84
Man	Jowar	21339	18.66
Khatav	Jowar	28992	24.31
Koregaon	Lobia	22514	22.18
Satara	Jowar	11946	15.57
Jaoli	Rice	8441	23.04
Patan	Rice	11629	16.16
Karad	Fodder crops	15497	13.48

Source: Computed by Researcher

The Fig. No. 3 shows the second-rank crops in different tehsils of Satara district. Corn is the second major crop in Mahabaleshwar tehsil (30.54%), while Soyabean ranks second in Wai tehsil. Gram in Khandala tehsil (29.44%) and Wheat in Phaltan tehsil (19.84%) indicate diversification towards pulses and food grains. In the drought-prone tehsils of Man and Khatav, Jowar appears as the second-rank crop, which is suitable for dry farming. Rice ranks second in Jaoli and Patan tehsils, due to favorable rainfall conditions. In Koregaon, Lobia holds the second position, which indicates importance pulse cultivation. Satara shows Jowar as the second ranking crop, while Karad has fodder crops in the second rank, indicating the influence of dairy and sugarcane-based agriculture. Overall, the second-rank pattern reflects crop diversification based on rainfall, soil type, and irrigation availability across the district.

Table No. 3: Third Rank Crop in Satara District

Tehsil	Crop	Area (Hector)	Percentage Share of Cropped Area
Mahabaleshwar	Gram	1986	10.35
Wai	Sugarcane	4809	11.70
Khandala	Bajara	9065	20.38
Phaltan	Sugarcane	5767	9.19
Man	Gram	8962	7.84
Khatav	Soyabean	14878	12.47
Koregaon	Soyabean	19516	19.23
Satara	Sugarcane	11305	14.73
Jaoli	Corn	3315	9.05
Patan	Jowar	11392	15.83
Karad	Soyabean	13768	11.98

Source: Computed by Researcher

The Fig. No. 4 shows the third-rank crops in various tehsils of Satara district, indicating further crop diversification. Gram is third ranking crop in Mahabaleshwar and Man tehsils. It shows the role of pulses in both high rainfall and semi-arid areas. Sugarcane ranks third in Wai, Phaltan, and Satara tehsils, reflecting expansion of irrigation facilities and commercial agriculture. Bajara rank third in Khandala tehsil (20.38%) and Jowar in Patan tehsil (15.83%) which indicates the importance of coarse cereals. Soyabean occupies the third rank in Khatav, Koregaon, and Karad tehsils, shows growing importance of Soyabean as a cash crop. In Jaoli tehsil, Corn holds the third position. Overall, the third-rank crops include mix of cereals, pulses, and commercial crops influenced by agro-climatic and irrigation conditions.

Table No. 4: Fourth Rank Crop in Satara District

Tehsil	Crop	Area (Hector)	Percentage Share of Cropped Area
Mahabaleshwar	Bajara	1079	5.62
Wai	Ground nut	4809	11.70
Khandala	Wheat	2929	6.58
Phaltan	Gram	4307	6.86
Man	Wheat	8936	7.82
Khatav	Gram	9283	7.78
Koregaon	Groundnut	14134	13.93
Satara	Rice	5822	7.59
Jaoli	Groundnut	2876	7.85
Patan	Groundnut	9173	12.74
Karad	Groundnut	13111	11.40

Source: Computed by Researcher

The Fig. No. 5 presents the fourth-rank crops in different tehsils of Satara district. Groundnut appears prominently as the fourth-rank crop in Wai, Koregaon, Jaoli, Patan, and Karad tehsils. It shows its importance as an oilseed crop. Gram rank fourth in Phaltan and Khatav tehsils and Wheat rank fourth in Man, and Khandala tehsils. It reflects role of food grains and pulses in semi-arid regions of Satara district. In Mahabaleshwar, Bajara ranks fourth. In Satara tehsil Rice is the fourth ranking crop. Overall, the fourth-rank crops show increasing area under cereals, pulses, and oilseeds.

Table No. 5: Fifth Rank Crop in Satara District

Tehsil	Crop	Area (Hector)	Percentage Share of Cropped Area
Mahabaleshwar	Groundnut	682	3.55
Wai	Wheat	3606	8.77
Khandala	Sugarcane	1021	2.30
Phaltan	Bajara	4256	6.78
Man	Pigeon Pea (Tur)	2220	1.94
Khatav	Lobia	8460	7.09
Koregaon	Sugarcane	6956	6.85
Satara	Groundnut	5648	7.36
Jaoli	Fodder crops	1767	4.82
Patan	Soyabean	6571	9.13
Karad	Jowar	11046	9.61

Source: Computed by Researcher

The Fig. No. 6 shows the fifth-rank crops in various tehsils of Satara district. Groundnut appears as the fifth rank crop in Mahabaleshwar and Satara tehsils, while Wheat ranks fifth in Wai tehsil. Sugarcane has the fifth rank in Khandala and Koregaon tehsils, reflecting limited presence of irrigation facilities. Bajara in Phaltan tehsil and Jowar in Karad tehsil indicate the role of coarse cereals at lower ranks. In Man tehsil, Pigeon Pea (Tur) appears with a very small share (1.94%). Lobia in Khatav tehsil and Soyabean in Patan tehsil rank fifth. Jaoli shows fodder crops in the fifth rank, suggesting the role of livestock-based agriculture. Overall, the fifth-rank crops cereals, pulses, oilseeds, and commercial crops contribute in smaller proportions across the district.

Table No. 6: Sixth Rank Crop in Satara District

Tehsil	Crop	Area (Hector)	Percentage Share of Cropped Area
Mahabaleshwar	Pigeon pea (Tur)	551	2.87
Wai	Lobia	2384	5.80
Khandala	Groundnut	983	2.21
Phaltan	Groundnut	3942	6.28
Man	Corn	1536	1.34
Khatav	Wheat	5487	4.60
Koregaon	Wheat	4526	4.46
Satara	Tomato	5043	6.57
Jaoli	Soyabean	1659	4.53
Patan	Ragi (<i>Nachani</i>)	4738	6.58
Karad	Onion	10861	9.45

Source: Computed by Researcher

The Fig. No. 7 shows sixth rank crops in the tahsils of Satara District. These crops occupy relatively smaller proportions of the gross cropped area. Their percentage share varies from 1.34% to 9.45%.

The lowest share is found in Man tehsil (corn: 1.34%), while the highest share is found in Karad (onion: 9.45%).

Table No. 7: Seventh Rank Crop in Satara District

Tehsil	Crop	Area (Hector)	Percentage Share of Cropped Area
Mahabaleshwar	Ragi (<i>Nachani</i>)	485	2.53
Wai	Rice	1803	4.38
Khandala	Onion	705	1.58
Phaltan	Onion	1992	3.17
Man	Black Gram (<i>Udid</i>)	1325	1.16
Khatav	Green Gram (<i>Mung</i>)	4110	3.45
Koregoan	Bajara	4176	4.11
Satara	Wheat	5013	6.53
Jaoli	Sugarcane	1378	3.76
Patan	Fodder crops	2269	3.15
Karad	Wheat	3805	3.31

Source: Computed by Researcher

The spatial distribution of seventh rank crops in the tehsils of Satara District is shown in the Fig. No. 8. Seventh rank crops have relatively smaller proportion of the total cropped area. Their proportion varies from 1.15% to 6.53%. Wheat (6.53%) is seventh-ranked crop in Satara tahsil. Minimum share of seventh-ranked crop is found in Man tehsil (Black Gram: 1.15%). Onion is the seventh-ranked crop in Khandala (1.58%) and Phaltan tehsils (3.17%). Sugarcane in Jaoli (3.76%) is at seventh rank. Fodder crops in Patan (3.15%), Green Gram (*Mung*) in Khatav (3.45%), udid in Man, Rice (4.38%) in Wai, Bajara (4.11%) in Koregaon, Ragi (*Nachani*) (2.53%) in Mahabaleshwar, Wheat (3.31%) in Karad is at seventh rank. The seventh rank crop pattern shows moderate but organized diversification in Satara District.

Crop Combination Region:

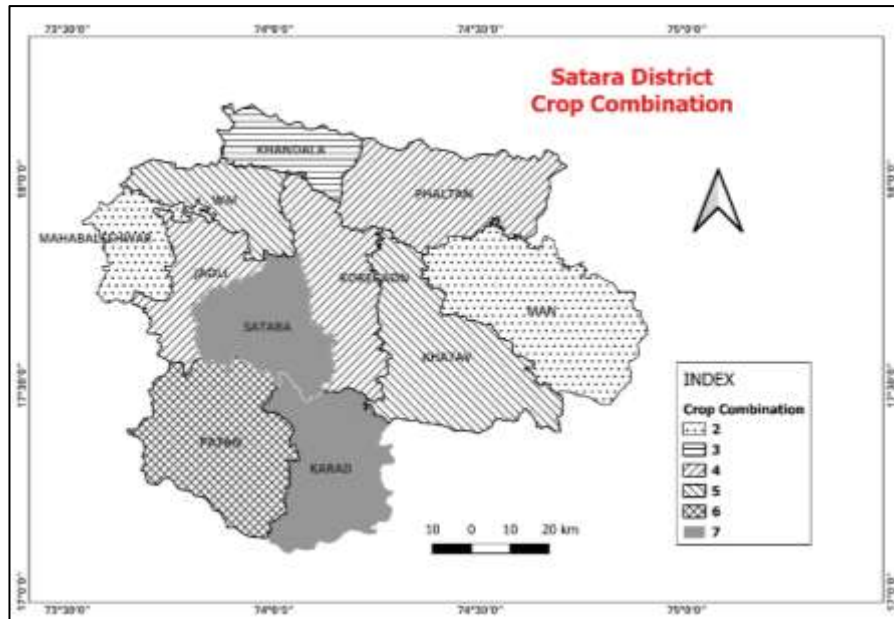
Analysis of crop combination shows large variations in agricultural practices in different tehsils of Satara district. The number of crops in each crop combination represents the level of crop diversification and agricultural intensity.

Table No. 8: Crop Combination in Satara District

Tahsil	Combination	Crops
Man	2	Bajara, Jowar
Mahabaleshwar	2	Rice, Corn
Khandala	3	Jowar, Gram, Bajara
Phaltan	4	Jowar, Wheat, Sugarcane, Gram
Jaoli	4	Jowar, Rice, Corn, Ground nut
Koregaon	4	Jowar, Lobia, Soyabean, Groundnut
Khatav	5	Bajara, Jowar, Soyabean, Gram, Lobia
Wai	5	Jowar, Soyabean, Sugarcane, Groundnut, Wheat
Patan	6	Corn, Rice, Jowar, Groundnut, Soyabean, Ragi (<i>Nachani</i>)
Satara	7	Soyabean, Jowar, Sugarcane, Rice, Groundnut, Tomato, Wheat
Karad	7	Sugarcane, Fodder crops, Soyabean, Groundnut, Jowar, Onion

Source: Computed by Researcher

Fig. No. 9: Crop Combination in Satara District



The analysis of crop combination patterns at the tehsil level reveals significant spatial variation in agricultural diversification across the district. The number of crops included in each combination ranges from two to seven. This variation is mainly because of differences in physical conditions, irrigation availability, and agricultural development.

1. Low Crop Combination (2 Crops Combination)

Man and Mahabaleshwar show two-crop combinations. In Man Tehsil Bajara and Jowar are dominant crops. This is the indication of semi-arid climatic conditions, low rainfall, and inadequate irrigation facilities in Man Tehsil. In Mahabaleshwar Tehsil Rice and Corn are dominant crops. High rainfall, hilly terrain, and climatic conditions in Mahabaleshwar tehsil are suitable for Rice and Corn. This type of combination shows relative specialization and lack of diversification.

2. Moderate Crop Combination (3-4 Crops)

Khandala (3 crops), and Phaltan, Jaoli, Koregaon (4 crops) exhibit moderate diversification.

Khandala: Area under Jowar, Gram, and Bajara indicate a mixed dry farming practice in Khandala Tehsil.

Phaltan: Jowar, Wheat, Sugarcane, Gram are dominant crops in Phaltan tehsil. Area under Sugarcane and Wheat indicates better irrigation facilities in tehsil.

Jaoli: Rice and Groundnut along with Jowar and Corn indicate transitional agro-climatic conditions.

Koregaon: A combination of food grains (Jowar, Lobia,) and oilseeds (Soyabean, Groundnut) indicates balanced agriculture.

These tehsils indicate a transition from subsistence to semi-commercial agriculture.

3. High Crop Combination (5 Crops)

Khatav and Wai tehsils are classified as five-crop combination areas. There is enhanced diversification in cereals, pulses, oilseeds, and commercial crops. Moderate irrigation facilities and better agricultural practices in these tehsils are responsible for the diversity in crops. The presence of Sugarcane and Soyabean marks commercialization of agriculture in these tehsils.

4. Very High Crop Combination (6-7 Crops)

Patan (6 crops), and Satara & Karad (7 crops) have the highest level of crop diversification.

Patan: Addition of Ragi (Nachani) along with Corn, Jowar, Rice and Oilseeds indicate diverse topography and rainfall patterns.

Satara: Addition of Tomato and other commercial crops with cereals indicates market-oriented agriculture and improved infrastructure.