

**SPATIAL CHANGE IN CROP COMBINATION PATTERN OF JUNNAR TAHSIL OF PUNE, DISTRICT (MAHARASHTRA)****Dr. Sharad B. Kaphale<sup>1</sup> Dr. Jyotiram C. More<sup>2</sup> Dr. Gangadhar Lawande<sup>3</sup>**<sup>1</sup>Department of Geography, ACS College, Narayangaon<sup>2</sup>Department of Geography BJS Arts, Science & Commerce College, Wagholi, Pune.<sup>3</sup>Rajale College, Pathardi, Ahmednagar**Abstract**

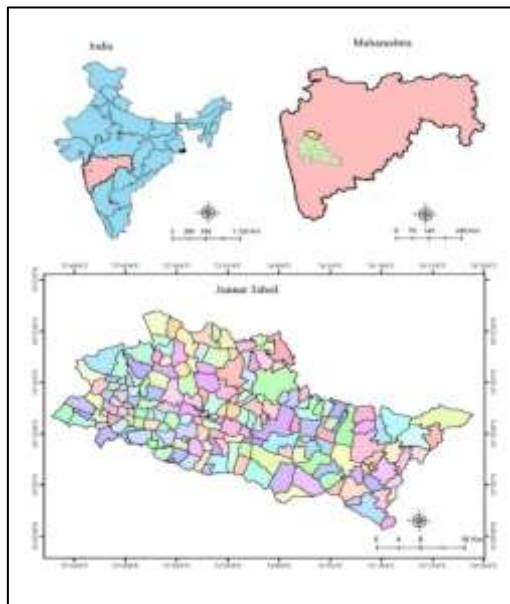
*The Agricultural Regionalization is a very important fact to the farmers help in taking decision for crop cultivation and this may be done with the help of different methods like Crop Combination, Crop Concentration, and Patterns of Crop Rotation etc. The Study identifies the basic crop combination in Junnar tahsil, which basically an agriculture dominated area. Normally crops are grown in a Combination rather than single. The present study is based upon the secondary data collected from Agriculture Department of Pune District and the Method has been adopted to calculate the value belongs to Wever's Method. The calculation of the crop combination was done for 181 villages for the year 2018-19, using Weaver's method. The crop combination of the Junnar tahsil has shown a spatial variation of crop diversity and pattern, In the present study, on the basis of the calculation of the crop combination of the Junnar tahsil, we have found four types of crop combination i.e. two crop combination, three crop combination, four crop combination, and five crop combination*

**Key words:** Agriculture, Crop Combination**1. Introduction-**

The study of crop combination constitute as an important aspect of the agricultural in fact its provides a good basis for agricultural regionalization and helps to formulation of strategy for agricultural development the crop combination for delimiting agricultural regions on the basis of varieties of crops. The method was starts from the observation that single crop situation is are rare and that is most areas farmers habitually grow a Variety of crops, therefore 'crop concentration' study is vitals Geographers are often interested in the study of individual crops for their own sake. However, a study of an individual crop cannot communicate the whole scenario of an agricultural landscape. We seldom come across a crop that is completely growing in an isolated manner, minor crops have an important function even in locations where a single crop dominates. For a fundamental understanding of agricultural regionalism, crop combination region studies are an essential part of agriculture geography. In an agriculture system, the crop combination is the output of climate, topography, soil, market demands, economic conditions, etc. which may vary from area to region. However, although each region of Individual to crops is beneficial for planners, it is much more vital to evaluate the integrated assemblage of diverse crop combinations in regard to the quantum or variety of crops in a region at a given moment. Crop dominant and diversified zones are identified as a result of the search for generalization of patterns of areal dominance of crops. The notion of crop combination regions seems to be viable since it allows for the creation of distinct zones based on the areal dominance of crops that are spatially connected and coexist in variable degrees. It should also be noted that the purpose of delimiting crop combination zones is to make the agricultural intricacies of the area easier to describe and comprehend. A delimitation is only a tool for better understanding the agricultural

condition, not an objective in itself. The study of crop combination is critical to a thorough and deeper knowledge of the agricultural system and is vital for agricultural planning. Crop combinations in Junnar tahsil are examined in this research.

## 2. Study Area



**Figure 1: Location Map of Study Area**

Junnar, the northernmost tahsil of the Pune district, is situated between 19° 08' 52.72" N and 19° 21' 26.62" N latitude and 73° 40' 18.07" E to 74° 18' 54.27" E longitude, having an area of 1383 sq.km at an average elevation of 838 metres above mean sea level. Tahsil measures 62.31 km east-west and 29.19 km north-south. This roughly oblate or rectangular-shaped tahsil is ranked 3rd in terms of area and literacy, and 4th in terms of population and sex ratio. The boundaries of the tahsil are in the Survey of India toposheet numbers 47E/11, 47E/12, 47E/15, 47E/16, and 47I/3, 47I/4, and 47I/8.

## 3. Objectives

- To find out Crop Combination of Junnar tahsil by using Weaver's method during the year 2018-19.
- To find out causes of crop combination variation in the study region.

## 4. Database and Methodology

The entire work is mainly based on secondary data i.e., collected from Agriculture Department of Pune district. For the calculating crop combination of given region 'crop combination method of Weaver' has been applied. This method applied for the data of the year 2018-19.

### Crop Combination method of 'Weaver'

In the field of agriculture geography weaver was the first who use statistical techniques to establish crop combination for Middle West in United States in 1954. In this attempt for the delimitation of agriculture regions of the Midwest in USA weaver the percentage of total harvested cropland occupied by each crop that held as much as 1 percent of the total cultivated land in each of the 1081 countries covered in his work. He used following formula for calculation of crop combination,

$$d = \sum d^2 / n$$

Where,  $d$  = difference between the actual crop percentage in given areal unit

n = number of crops in given combination

**5. Result & Discussion****5.1 Crop Combination result for the year 2018-19**

Sr · N o.	Crop Combinatio n	Villages	Crop Com binat ion
1	One Crop Combinat ion	Taleran, Ajnawale, Ghatghar, Phagul Gavhan,	P
2	Two Crop Combinat ion	Udekhadak, Kewadi, Mankeshwar, Ralegaon Usran, Ucchil, Dhalewadi Tarf, Amboli, Bhivande Bk. Hatvij	P.G
3	Three Crop Combinat ion	Ahinavewadi, Alme, Alu, Ambe Gavhan, Aptale, Bhoirwadi, Chilhewadi, Gaymukhwadi, Godre, Hadsar, Jambhulpad, Jambhulshi, Kale, karanjale, Keli, Khamgaon, Khangaon, Khireswar, Kolhewadi, Madh, mandame, Mandarne, Manikdoh, Chawad, Khadkumbe, Multhane, Navalewadi, Padirwadi, Pangari Tarf Madh, Pimpalgaon Joga, Pimplegaon Siddhanath, Shindewadi, Shirolu Tarf Kukadneher, Sukalwedhe, Tambe, Udaipur, Wanewadi, Yenere. Belsar, Datkhilwadi, Buchakewadi, Watkhale, Vadaj, Katede, Kopare, Aldare, Botarde, Khaire, Jalwandi, Minher, Ingaloan	P, SG, G
4	Four Crop Combinat ion	Anandwadi, Ane, Aurangpur, Bangarwadi, Basti, Belhe, Chincholi, Gulanchwadi, Gunjalwadi, Hivare Tarf Narayangaon, Jadhav Wadi, Khilarwadi, Khodad, Mangrul, Manjarwadi, Nalawane, Nimdari, Nimgaon Sawa, Nimgaon Tarf Mahalunge, Ranmalawadi, Sakori T Belhe, Santwadi, Sawargaon , Shirolu T Ale, Sultanpur, Tambewadi, Unckhadakwadi, Vadgaon Sahani, Warulwadi, Yadavwadi, Zap. Panchgharwadi, Khubi, Bagadwadi, Pargaon Tarf Madh, Sitewadi, Surale Nirgude, Devale, Khatkade, Hivare tarf Minhar, Pimparwadi, Hirdi, Sonawale, Pur, Bhivande Kh., Shivali, Ambe	SG, W, O, G
5	Five Crop Combinat ion	Agar, Ale, Alefata, Amrapur, Arvi, Ballawadi, Barav, Bhatkalwadi, Bhorwadi, Bori BK., Bori Kh., Chalakwadi, Dhalewadi Tarf Haveli, Dhamankhet, Dhangarwadi, Dholwad, Dingore, Dhumbarwadi, Golegaon, Hapus Baug, hatban, Hivare Bk., Hivare Kh., Junnar, Kalwadi, Khamundi, kandali, Khanapur, Kolwadi, Kumshet, Kuran, Kusur Malwadi, Nagadpadi, Narayangaon, Netwad, Otur, Ozar, Padali, Panagari Tarf Otur, Pimpalwadi, Pimpri Pendhar, Rajuri, Shirolu Bk., Shirolu Kh., Somatwadi, Tajewadi, Tikekarwadi, Umbraj, Vadgaon Khandali, Vaishakh Khede, Vaighnagar Nagar, Wadgaon Anand, Yedgaon Rajur, Rahkadi, Sanganore, Tejur, Shinde, Gangardale, Pimaplgaon Tarf Ale, Parunde, Pemdara, Pimaplgaon T Narayangaon, Pimpri Kawala	G, W, S, SG, O

**Table 5.1 Crop Combination result for the year 2018-19** (Source- Calculated by Researcher)**5.2 Crop Combination Region-**

The study was carried out on the most significant food and non-food crops. The percent area under these crops has been organized in decreasing order, and the crop zones have been identified using combination analysis. The investigation was taken out at the district level. To determine the existing agricultural zones of Junnar tahsil, data was gathered from the district socio-economic abstract, agriculture census, and tahsil agriculture department, the Weavers technique of combination analysis is used. To analyze crop combinations, the ranking of crops by total cultivated area was utilized to determine which crops dominate in the tahsil. There are 9 crops that account for the highest proportion of total cropped land. Other crops are planted alongside primary ones. The first rank crop may range from 100 percent to 35 percent. The nine crops are 1). Paddy, 2). Wheat, 3). Sorghum, 4). Pearl Millet, 5). Finger millet, 6). Legume, 7). Sugar cane, 8). Groundnut 9). Onion. The calculation of the crop combination was done for 181 villages for the year 2018-19, using Weaver's method. The crop combination of the Junnar tahsil has shown a spatial variation of crop diversity and pattern, In the present study, on the basis of the calculation of the crop combination of the Junnar tahsil, we have found four types of crop combination i.e. two crop combination, three crop combination, four crop combination, and five crop combination

**Conclusion**

According to the calculations of the crop combination of the Junnar tahsil out of 181 villages of the tahsil, 2.76 percent of the villages have mono-crop combination were rice is major crop, 5.52 percent of the villages have two crop combinations in which rice and groundnuts are majorly grown. 28.18 percent of the villages represent three crop combination were sugarcane, rice and groundnuts are major crops, 27.07 percent of the total villages practice four crop combination where wheat, sugarcane, onion and groundnut are major crop and 36.46 percent of the total villages practices five crop combination where groundnut, wheat, sorghum, sugarcane and onion are major crops. The results of crop combination points that there is no dominance of a particular crop in the Junnar tahsil

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