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# A Geographical Study of Crop Diversification in Man Tehsil of Satara District

**Miss. Mane Sanchita Changdev[1] & Dr. Divate Sanjay Pandurang[2]**
[1]*Student, B.A. Part III, Dept. of Geography, Dahiwadi College Dahiwadi*
[2]*Assistant Professor, Dept. of Geography, Dahiwadi College Dahiwadi*
***Corresponding Author – Dr. Divate Sanjay Pandurang***
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***Abstract:***

*Crop diversification is the technique of study of variety of cropping pattern used by farmers in his agriculture in agriculture year. Man tehsil continuously affected by the drought and scarcity of water for irrigation. Due to lack of water farmers in Man tehsil cultivated variety of crops in their land for sustain their agriculture. For the study of crop diversification, Bhatia's and Jasbir Singh's technique of crop diversification is applied of identification of crop diversification regions in Man tehsil for the year 2021-22. As per the data analysis the highest crop diversification is observed in Dahiwadi circle by Bhatiya's method and in Malawadi circle by Jasbir Singh's method.*

***Keywords : Crop Diversification, Cropping Pattern***

## Introduction:

Crop diversification technique is an opposite of the crop specialization. Crop diversification means, the farmers try to grow numerous crops in their land in an agricultural year. On the other hand, crop diversification means competition among various grown crops for space in a given region. It also means raising a variety of crops involving intensity of competition amongst field crops for arable land. It is an indicator of multiplication of crops which obviously involves severe competition among the growing crops of the area. The magnitude of crop diversification largely based on the physiographic, climatic, socio-economic conditions and technological development in a region. Crops are diversified in the field due to erratic nature of rainfall and insufficient irrigation. Farmers grow many crops in order to sustain the agriculture. Crop diversification is generally viewed as a shift from traditionally grown less remunerative crops to more remunerative crops e.g. growing of rice in high water table areas replacing oilseeds, pulses and cotton with the advent of modern agricultural technology especially during the period of green revolution because rice give maximum economic returns. Government policies, market, infrastructure, price, attitudes of farmers and transport facilities etc. are also responsible for crop diversification. Crop diversification also taken place in the areas facing distinct soil problems. Crop diversification also gives more employment opportunities for the small farmers as well as for agricultural labourers throughout the year. The crop diversification however is the outcome of the interactive effect of many factors. In general, higher the development of agricultural technology, lesser the degree of crop diversification while lower the levels of agricultural technology, higher the degree of crop diversification. Socio-economic conditions are also important factor influenced on the crop diversification; it means the rich farmers prepare to specialize crop in our agricultural enterprise while the poor and subsistent farmers are

generally more interested in the crop diversification. Competition in market is also influenced on the crop diversification in a region, such as the keener the competition the higher the degree of crop diversification, and lower the competition greater will be the trend of monoculture farming which means emphasis is on one or two crops.

Thus, it is recognized that the study of spatial patterns of crop diversification is of vital importance and almost indispensable to understand the competition that goes among different crops. In recently, agricultural diversification almost a normal feature of stable agriculture and progressive farm management in most of the widespread agricultural parts of a region. The main advantage of crop diversification is that it provides a relationship between the relative areal strength of the crops grown in a region. Several techniques have been developed by different geographers for computation of crop diversification. Out of them in this study the method proposed by Bhatia and Jasbir Singh are applied for the delineation of crop diversification regions in Man tehsil for the year 2021-22.

**Objective:**

The main objective is to study the spatial analysis of crop diversification in Man tehsil.

**Study Area:**

Man tehsil is located in eastern drought prone area of Satara district. The tehsil have only river named Man which is seasonal and have water only in rainy season. Due to origin of river Man, the tehsil has name Man and the region is known as '*Mandesh*'. River Man is originates at Kalasakarwadi 25 km away from western side of Shikar Shingnapur at the height of 917 meters from the sea level and flows northwest to south East. The Study region lies between $17^0$ 27'14" to $17^0$ 54'05" North to $74^0$ 21'47" East to $74^0$ 54'09" East longitudes and covers 1454.9 sq. km the total area. It has 46.07 percent net sown area to total geographical area having 150787 hectare and is mostly occupied by cereal crops i.e. 75.94 percent. As per census 2011 there are 106 villages and only one urban center in tehsil having 225634 population and no doubt it is lives in rural area i.e. 89.31percent.

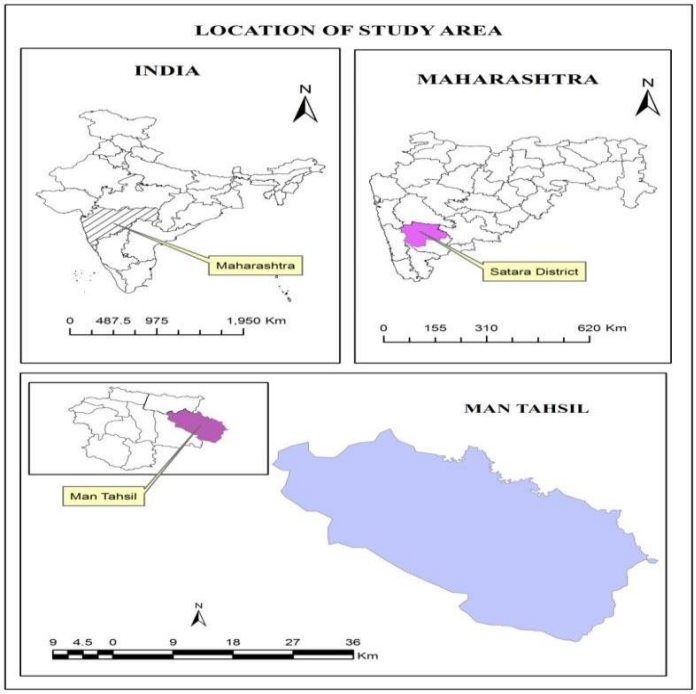


Fig. 1

**Data Source and Methodology :**

The present study based on secondary data collected from district census handbook and Taluka Krushi Adhikari Karyalay of Man. The collected data processed and represented by using statistical technique. To check the crops diversification in the study area crop diversification techniques of Bhatia's and Jasbir Singh's have applied.

For the measurement of crop diversification, Bhatia (1965) developed a formula based on the gross cropped area. The formula has been expressed as:

$$\text{Index of Crop} = \frac{\text{Per cent sown area under x}}{\text{Number of x crops}}$$

Where, x crops are those crops that individually occupy 10 per cent or more of the gross cropped area in the area under study.

Crop Diversification Method of Jasbir Singh

$$\text{Index of Crop Diversification} = \frac{\text{Percentage of total harvested area under n crops}}{\text{Number of n crops}}$$

Where, x crops are those crops that individually occupy 10 per cent or more of the gross cropped area in the area under study.

**Crop Diversification Region based on Bhatia's Method:**

The output the indices of crop diversification by Bhatia's method are shown in table 1. In general, the higher level of crop diversification index, lower is the level of interest in the crop diversification. Moreover, it is important to examine the changes in the pattern of diversification which take place over period of time. Some patterns are relatively permanent and even maintain the same core area over a long period, thus exhibiting only expansion and diversification within the same location as also same shifting of core. The diversification of crops varies largely from one part of the tehsil to other and one time of point to another.

**Table 1: MAN TEHSIL: Crop Diversification (Bhatiya's Method) 2021-22**

| Sr. No. | Name of Circle | Index of Crop Diversification | Degree of Diversification |
|---|---|---|---|
| 1 | Mardi | 20.65 | High |
| 2 | Dahiwadi | 19.29 | High |
| 3 | Malawadi | 21.39 | Moderate |
| 4 | Andhali | 22.07 | Moderate |
| 5 | Gondawale Bk. | 22.36 | Moderate |
| 6 | Kukudwad | 23.33 | Low |
| 7 | Var-Malawadi | 19.95 | High |
| 8 | Mhaswad | 23.06 | Low |
| 9 | Shingnapur | 23.29 | Low |
| | ManTehsil | 22.54 | Low |

Source: Tehsil Agriculture Office of Man

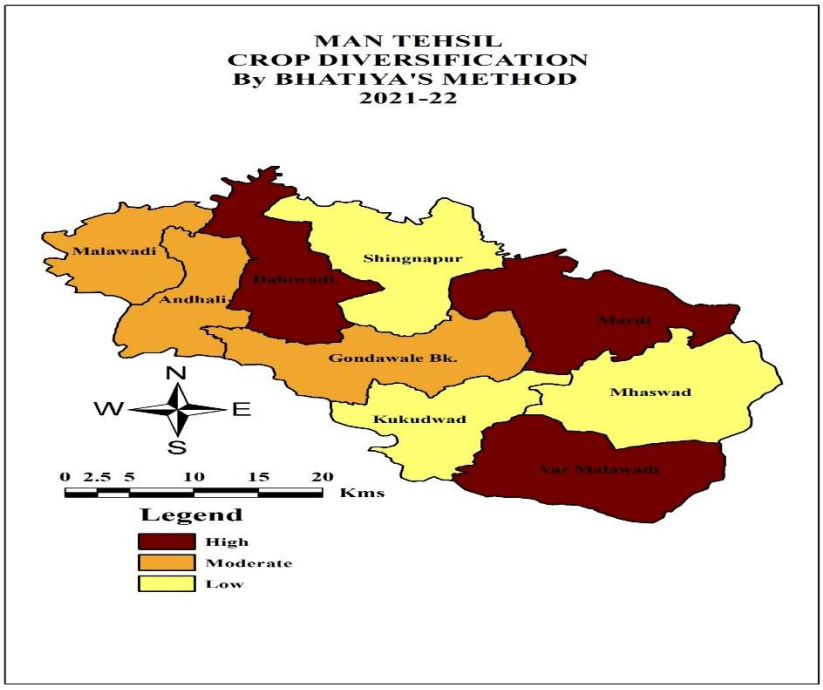


Fig. 2

The index of crop diversification for Man tehsil has been discussed for agriculture year 2021-22. On the basis of crop diversification indices calculated by Bhatia's, it can be divided into three categories of diversification areas of the tehsil.

- High crop Diversification *(DI <20.65)*
- Medium crop Diversification *(DI 20.65 to 22.36)*
- Low crop Diversification *(DI >22.36)*

Fig. 2 represents the crop diversification in Man tehsil. High crop diversification is found in Mardi, Dahiwadi and Var-Malawadi circle. As per the calculations of crop diversification index value highest diversification is observed in Dahiwadi circle (19.29). The moderate diversification is found in Malawadi, Andhali and Gondawale Bk. and the low crop diversification is observed in Kukudwad, Mhaswad and Shingnapur circle (table 1).

**Crop Diversification Region based on Jasbir Singh's Method:**

Table 2 represents the crop diversification region in Man tehsil as per the calculations based on Jasbir Singh's method. Crop diversification regions can be divided into three categories of diversification areas of the tehsil.

**Table 2: MAN TEHSIL: Crop Diversification (Jasbir Singh's Method) 2021-22**

| Sr. No. | Name of Circle | Index of Crop Diversification | Degree of Diversification |
|---|---|---|---|
| 1 | Mardi | 15.77 | Moderate |
| 2 | Dahiwadi | 19.29 | Low |
| 3 | Malawadi | 14.31 | High |
| 4 | Andhali | 14.68 | High |
| 5 | Gondawale Bk. | 14.72 | High |

| | | | |
|---|---|---|---|
| 6 | Kukudwad | 14.56 | High |
| 7 | Var-Malawadi | 17.19 | Moderate |
| 8 | Mhaswad | 16.52 | Moderate |
| 9 | Shingnapur | 15.14 | High |
| | Man Tehsil | 16.18 | Moderate |

Source: Tehsil Agriculture Office of Man

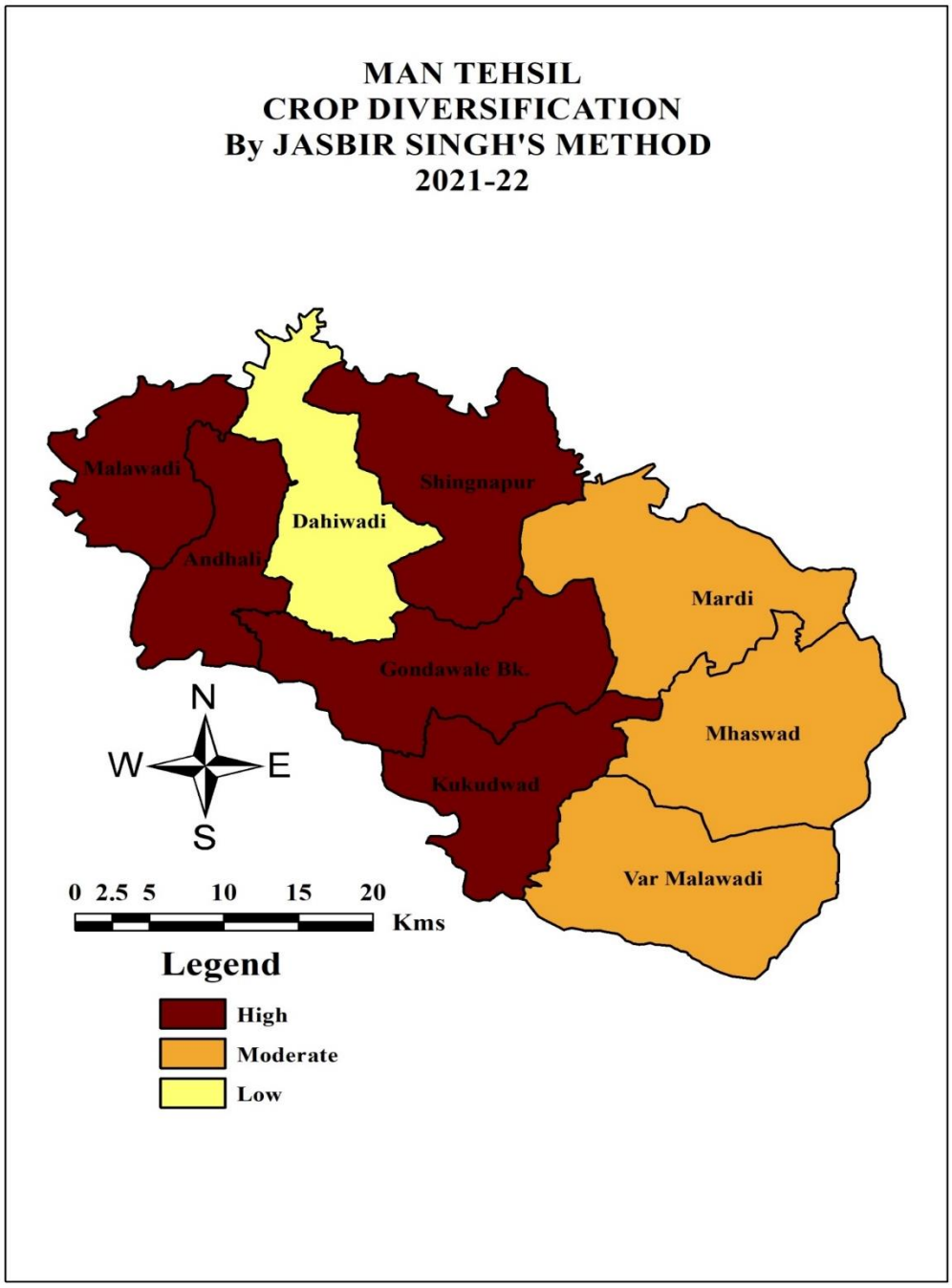


Fig. 3

High crop Diversification *(DI <15.14)*

Medium crop Diversification *(DI 15.14 to 17.19)*

Low crop Diversification *(DI >19.19)*

Fig. 3 shows the crop diversification in Man tehsil. As per the calculation of crop diversification index the high diversification is observed in the circles having below 15.14. In this category Malawadi, Andhali, Gondawale Bk., Kukudwad and Shingnapur circles are included. The highest crop diversification is found in Malawadi circle with 14.31diversification index. The moderate diversification is observed in Mardi, Var-Malawadi and Mhaswad circles (table 2). Low crop diversification is observed in only one circle namely Dahiwadi having 19.29 diversification index.

**Conclusion:**

As per Bhatiya's method of crop diversification, tehsil as whole diversification of crop is low. At circle level the high crop diversification is found in Mardi, Dahiwadi and Var-Malawadi circle. As per the calculations of crop diversification index value highest diversification is observed in Dahiwadi circle (19.29). Low crop diversification is observed in Kukudwad, Mhaswad and Shingnapur circle.

As per Weaver's method of crop diversification, tehsil as whole diversification of crop is moderate. At circle level the high crop diversification is observed in Malawadi, Andhali, Gondawale Bk., Kukudwad and Shingnapur circles. Low crop diversification is observed in only one circle namely Dahiwadi having 19.29 diversification index.

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