

## Concentration of Cotton Crop in Chalisgaon Tehsil of Jalgaon District (MS)

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### Abstract

The main intension of this research paper is to display the concentration of cotton cultivation with the help of crop concentration method by S. S. Bhatia. This research work is based on secondary data which is collected from the tehsil office TF20 record. In the study region more than 9 crops are grown among these irrigated crops are Cotton, Sugarcane, Banana, Total Vegetable, Wheat and Corn significantly cultivated. In Chalisgaon tehsil highest percentage land is under cotton crop. In the study region cotton crop is first ranking cultivation. In the tehsil, two intensive zones of irrigated land are found on the both side of Titur and Girna river. In the region Cotton as irrigated crop is observed in many pockets.

**KEYWORDS:** Cropping Pattern, Crop Concentration, Irrigation, Chalisgaon, productivity

### INTRODUCTION:

Agricultural region is an uninterrupted area having same kind of homogeneity with specifically defined outer limit. Agricultural region, in fact, is a device for selecting and investigating regional groupings of the complex agricultural phenomena found on the earth surface .Depending on the terrain, topography, slope, temperature, amount and reliability of rainfall, soil and availability of water for irrigation, the cropping pattern very from region to region.(M. Husain1996)

In the black cotton soil as regur region in the North-West, cotton cultivation predominates. The cotton cultivation covers the Deccan trap region and Gujarat plain. The Narmada, Tapi, Purna, Sabarmati river valleys are basically heartland of cotton cultivation. As a cash-crop, cotton cultivation is always associated with one food grain cultivation, preferably Jowar, Bajra, or oil seeds. (Singh&Singh2006)

In the Chalisgaon tehsil Jamada and Manayad water projects are constructed across the Girna and Titur River. These projects help to selection of cropping pattern and increasing the production of agriculture. In the command area of these projects cotton, wheat, banana, Sugar-cane, and Vegetable, are successfully grown with the help of the canal and well irrigation. This region is a well irrigated area in the district. It is true that major, medium and minor water project helps irrigation and to increased agriculture productivity.

### OBJECTIVES:

The main objective of the present paper is to assess the Impact of groundwater on Cotton crop of the study area. To achieve this aim of the study, the following objectives are kept in mind.

- 1) To examine the irrigated cropping pattern.
- 2) To study the Concentration of cotton crop.

**STUDY REGION:**

This tehsil is stretching from 20°33'N 20°45'N and 74°45'E to 75°00'E. Chalisgaon tehsil is the well developed agriculture area in which cotton, sugar-cane and banana are grown as cash crop. It is significant to note that it fulfills rigid physical condition required for irrigated crops cultivation. In this tehsil the main rivers are Girna and Tittur. Girna is originated in Nashik District. It flows to North West direction in northern and southern part of Chalisgaon tehsil. Another main river is Tittur in Chalisgaon tehsil.

Chalisgaon tehsil is rich in respect of agricultural activities. This tehsil consist 138 villages. All villages are unique regarding the cropping pattern. Physiographical this tehsil is characterized by in the south Ajanta Ranges foothills, Girna River, Tittur Basin are agriculturally productive zone.

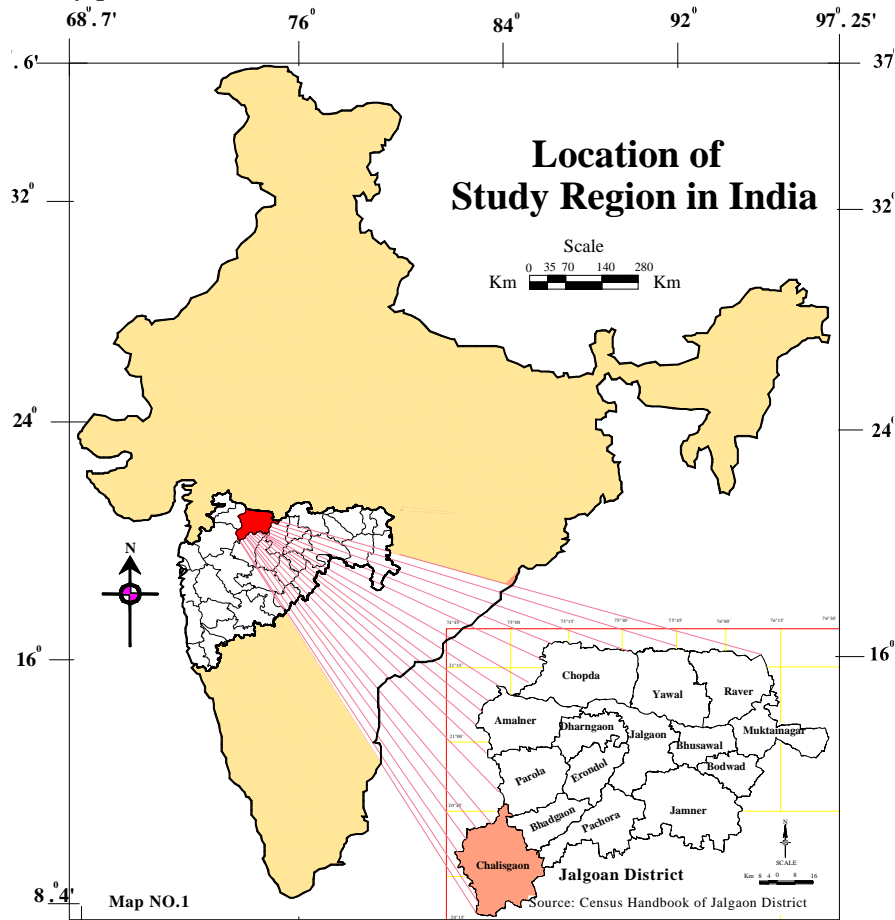


Figure No.1: Location map of study Region

**RESEARCH METHODOLOGY:**

**Data Base:** village wise voluminous data have been collected as below.

- 1) Village wise agricultural land cover data have been collected from Chalisgaon tehsil office (TF20 record) of 138 Villages. This data comprises total cultivated land, net cultivated land, net irrigated land, area under all irrigated crops etc.
- 2) Through internet geographical information of Chalisgaon tehsil and water project etc are collected.

- 3) Form census handbook of Chalisgaon tahsil, village code no., total geographical area of village, village boundary map etc. are used for this research work.

**Data Analysis Techniques:** This research work is entirely completed with the help of computer. Considering the nature of voluminous data, it is not possible to analyse such data manually.

1) For the data regarding the village wise cropping pattern Microsoft excel software is used. Chalisgaon tahsil comprises 138 villages. In all villages farmers are cultivating more than 9 irrigated crops. In excel work sheet such data is feeded systematically for proper analysis. For data analysis “If condition command”, “Advance filter command”, “conditional formatting” commands.

To calculate the concentration of cotton crop cultivation, S. S. Bhatia method of crop concentration is used. Bhatia has developed the equation to calculate crop concentration as below (Bhatia.1965).

$$\text{Concentration Index of "X" Crop} = \frac{\frac{\text{Area of "X" Crop in a Component aerial unit}}{\text{Area of all crops in a component aerial unit}}}{\frac{\text{Area of "X" Crop in entire region}}{\text{Area of all crops in entire region}}}$$

Considering the above equation, village wise concentration of cotton cultivated is calculated.

**Mapping Techniques:** Auto Desk Map software are used to prepare all maps. All maps first researcher has scanned the maps Chalisgaon tehsil given in the census handbook of Jalgaon district. In Auto Desk Map software layer system is given. With the help of layer command, layer by layer maps are prepared. Considering the village wise boundary maps, concentration maps are prepared cited below.

- Dot maps are prepared showing spatial distribution of cotton crops.
- By considering the scale, par sq.km grids are superimposed on dot maps.
- Dots are then counted in each grid.
- Counted numbers of dots are placed in respective grids.
- With the help of this value of dots, isopleths are drawn.
- According to the intensity of zones, hatching command is used to show the intensity zone of particular crops. Thus all maps are prepared showing intensity zones.

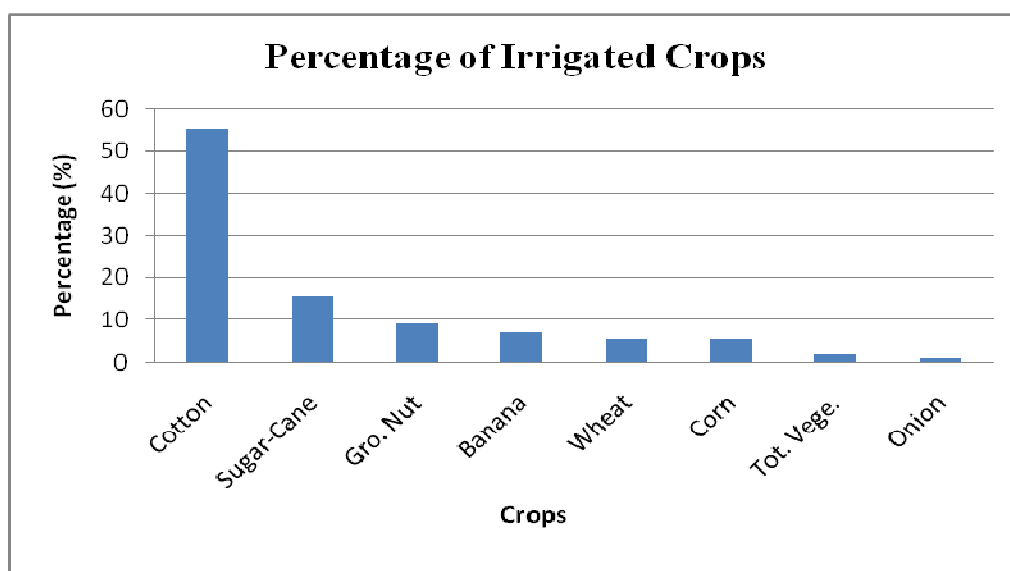
### DISCUSSION:

Crop concentration means the variations in the density of any crop in given area/region at a given point of time. The concentration of a crop in an area largely depends on its terrain, temperature, moisture and pedagogical conditions. It has a tendency to have high concentration in the areas of ideal agro climatic conditions and density declines as the geographical conditions become less conducive. It is because of the suitability of agro climatic condition that cotton has high concentration in black soil region.(M. Husain,1996).

This tehsil enjoy interfluves location of Girna and its tributaries Titur. On the both side of this river there is a network of canals which help to accelerating irrigate the land. In Chalisgaon tehsil have highest irrigated area due to favorable geographical condition.

In this study region more than 9 crops are grown among there irrigated crops Cotton, Sugarcane, Banana, Total Vegetable, Wheat, and Corn crops are significantly cultivated in this region.

Predominantly Chalisgaon tehsil is unique represent of variety crops. In this region about 95 crops are cultivate out of the total number of crops about eight irrigated crops are significant (Figure No .2)



**Fig. No. 2**

**Source:** Tehsil Office- Record No 20.

**CONCENTRATION OF COTTON:**

Predominantly Chalisgaon Tahsil is well known for cotton cash crop which is successfully grown since last 20-22 years ago. In Chalisgaon tehsil, the highest percentage land is under cotton crop. Cotton crop is first ranking cultivation.

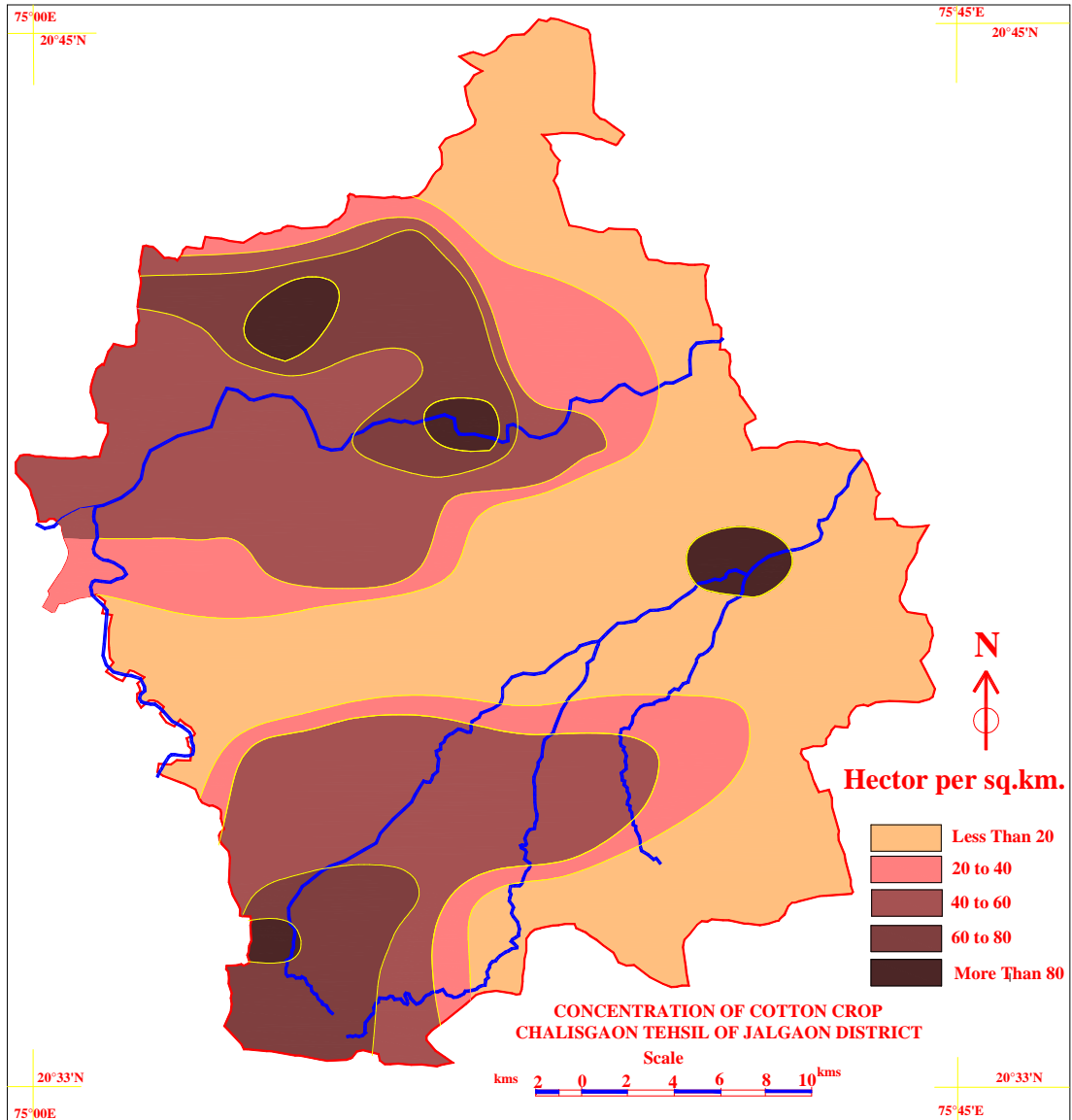


Figure No. 3: Concentration of cotton crop by Bhatia’s method

Figure No. 3 is showing high concentration of Cotton at Krishnanagar, Chinchgaon, Aregaon, Mondkhedekh, Patonda, Rajhire, Pimpalgaon, Mehunbare etc. villages. Back water of Jamda water project help in recharge the wells and facility of canal available for irrigation. Approximately More than 80% of the total cultivated land is under the cotton crop. It is noted that low concentration of cotton concentration is observed in villages like Pohere, Billkhede, Wadgaon, Tarwade Bh, Hingnesing, Wadala, Vinkhedi etc. However, cotton cultivation percentage rank first in Chalisgaon tahsil.

## CONCLUSION AND SUGGESTIONS:

It is clear that sub soil water storage is significant there. Canals and water project are helping to recharge the sub soil water. The two identical zones in respect of groundwater recharge are found in the northern and southern parts of the Girna river in Chalisgaon tehsil. Two intensive zones of irrigated land are found on the both side of Titur and Girna river. In this region Cotton irrigated crop are observed in many pockets. The southern part of the study region has shortage of groundwater. Hence farmers are cultivating cotton crop as a substitute of sugarcane and banana crops.

It is concluded that in the study region more than 9 irrigated corps are significant. In the study region first ranking crop is Cotton and villages Krishnanagar, chinchgaon, Aregaon, Mondkhede kh,patonda, Rajhire, Pimpalgaon, Mehunbare have the highest concentration of Cotton cultivation. In these villages approximately 80% of the total cultivated land is under this cotton crop.

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