Geographical Study of Crop Combination in Parbhani District (MS)

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Abstract: In this paper an attempt has been made to analyse the crop combination at district level in Parbhani District of Maharashtra. The study of crop combination regions is an important aspect of agricultural geography as it provided a good basis for agricultural regionalization. The crop are generally grown in combinations and it is rally that a particular crop occupies a position of total isolation in a given area unit at a given point of time. The distribution maps of individual crops are interesting and useful for planners but it is even more important to view the integrated assemblage of the various showing in an area unit. Geographers have always been closely related with patio-temporal analysis of the regional and ecological landscape of the earth. The significance of regional analysis is really ere of all geographic investigation. Agricultural landuse planners have paid considerable attention on such studies. Thus the crop combination regions delineated would emphasis the regional framework of agricultural activities and specialization of crops in the area. There are three cropping seasons in study region, namely kharif, rabbi and summer. During 2000-2005 two crop combination present in only Sompeth tahsil while three crop combination present in Gangakhed, Purna, Palam and Manvat thasils, whereas five crop combination was found in Pathri, Jintur and Salu thasils while six crop combination was found in Parbhani thasil and Parbhani district was found six crop combination during the investigation period.

INTRODUCTION

In this paper an attempt has been made to analyse the crop combination at district level in Parbhani District of Maharashtra. Agricultural crop combination in any region depend on physical, Climatic, and socio-economic conditions. The crop selection and method of production are influenced by activities of humans, price fluctuations in markets, purchasing power of people, transport and other inputs besides socio-economic conditions, tradition, previous experience and knowledge contributing for decisions regarding method of crops and method of production. Particularly, study of the crop combination at regional level, it is very essential to consider the combinational analysis and relative position of crops. This technique helps to identify crop regions in term of spatial predominance of certain crop or combination. Such analysis would ultimately minimize the change of oversimplified generalization (Ali Mohammad, 1978). Weaver’s crop combination study in geography is fruitful in many ways. Firstly, this technique provides an adequate understanding of individual crops. Secondly, combination is itself an integrative reality and lastly, crop combination region are essential for the construction of more complex structure of vivid agricultural region. This crop combination technique has great importance in regional agricultural planning. The present Paper is an attempt to study of crop combination in Parbhani district. The spatial distribution of agriculture crops and their temporal variations have been studied for agricultural crop combination in nine tahsils Parbhani, Gangakhed, Pathri, Jintur, Purna, Palam, Salu, Manvat and Sompeth. This paper studded the change of tahsil wise volume in 2000-05 to 2006-11. The first six years crops under areas volume change negative or positive in the particular crop in particular tahsils and why change this crops agriculture land under this crops change on next six year and discuses the factors are defected on this particular agricultural crop combination in this tahsils in Parbhani district.

There are three cropping seasons in study region, namely kharif, rabbi and summer. Kharif season begins in June or July and ends in September or October whereas rabbi season starts from March and end in may. Jowar, Bajra, Cotton, gram, tur, udid, groundnut and oil seeds are the major kharif crops grown in study region while Jowar, wheat, gram, maize, safflower and sunflower are rabbi crops. Fruits, Condiment, food grain crop, and vegetables are also produced in study region. These fruits are namely mango, banana, chiku, pomegranate, orange, guava, etc. Sugarcane and onion are grown in study region in both kharif and rabbi seasons in Parbhani district.

THE STUDY AREA

The district of Parbhani laying in the location point of view it is very necessary to think about all the geographical factors. Parbhani district located between 18°45’ north to 20°01’ North latitudes and 76°13’ east to 77°29’ East longitude. The area of
study region is 6511 km$^2$, which is 2.11 percent of the whole area of the state. The population in the study region is 1836086 populations in (2011 census) which is 1.63 percent of total population in Maharashtra.

**Map No 1. Location and Boundaries of Parbhani District**

**OBJECTIVE OF THE STUDY**

The present research Paper has been undertaken to make on in-depth and comprehensive study of crop combination in Parbhani district by evaluating following objectives:

i) To study the crop combination of study region

ii) To study the regional variation in crop combination of study region.

**DATA BASE AND METHODOLOGY**

The data this collected though primary and secondary sources. Secondary data obtained from socio-economic review, district census, were processed and presented by statistical and cartographic techniques, not only basis of primary and secondary data but with the help of various statistical and cartographical methods and techniques, researcher use spatial five crop combination regions based on wavers minimum standard deviation method during 2000 – 2011.

**EXPLANATION**

Combination analysis is one of the important tools particularly applied by agricultural geographers. Presently, statistical tools have gained momentum and its importance in agricultural geography. Particularly, study of the crop distribution at regional level, it is very essential to consider the combinational analysis and relative position of crops. With this procedure it is possible to establish and designate crop combinations which are come into existence because of closest resemblance in theoretical distribution of crops and actual percentage of crops. The ideal theoretical distribution of crops for monoculture is one crop accounts for 100 percent of total cropped area. For two crops combination it is 50 percent for each crop, for three crops it is 33.33 percent, for four crops it is 25.00 percent, for five crops it is 20.00 percent and so on. The variance and standard deviation formula are used to accurately compose the actual percentage within the individual regional units by theoretical distribution. This formula is stated as follows:

\[
\text{Variance} = \frac{\sum d^2}{N}
\]

\[
\text{Standard Deviation} = \sqrt{\frac{\sum d^2}{N}}
\]

Whereas: $d =$ Difference between actual crop percentage in a study region and the percentages in the theoretical distribution

$N =$ the number of crops in a given combination.

Thus the crop combination regions delineated would emphasis the regional framework of agricultural activities and specialization of crops in the area.

In present study, crop combination has obtained from by following statistical procedure. In case of

**Table No. 1 Chang in number of crops in the combination in Parbhani Dist.**

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Tahsil</th>
<th>Gross combination units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Year-2000-2005</td>
</tr>
<tr>
<td>1</td>
<td>Parbhani</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>Gangakhed</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Pathri</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>Jintur</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>Purna</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>Palum</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>Sailu</td>
<td>5</td>
</tr>
<tr>
<td>8</td>
<td>Sonpeth</td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td>Manvat</td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td>Parbhani Dist.</td>
<td>6</td>
</tr>
</tbody>
</table>

**Source:** Computed by the Author.
Map No.2A and table 1 Display that five crop combination regions based on wavers minimum standard deviation method during 2000-2005. They are derived from Twenty (20) crops (Rice, wheat, Javari, Bajara, Maize, Gram, Mug Tur, Udid, other pulses, sugarcane, condiment, fruits & vegetable, cotton, ground nuts, Safflower, Sunflower, other oil seeds fodder crops, fodder crops) has constituted at last 5% or more of total gross cropped area during 2000-2005 to 2006-2011. During 2000-2005 two crop combination present in only Sonpeth tahsil while three crop combination present in Gangakhed, Purna, Palum and Manvat thasil, whereas five crop combination was found in Pathri, Jintur and Sailu thasil while six crop combination was found in Parbhani, Gangakhed and Parbhani district was found six crop combination during the investigation period. Whereas four crop combinations was found in only Pathri tahsil while five crops combination was recorded in Gangakhed and Manvat tahsil whereas six crop combination was found in Parbhani, Jintur, Palum, Sailu and Sonpeth thasils while seven crop combination was found in only Purna tahsil in during 2006-2011.

As a result of the application of Weavers technique there was no change in Pathri tahsil and Parbhani district was six crop combinations during the period of 2000-05 to 2006-2011. Physical, economic reasons and individual decision of farmers are responsible for the shift in crop combination during the period of investigation whereas increasing crop combination of crops tahsil to tahsil as a Gangakhed three crop change to five crop, Jintur tahsil five crops change to six crops, Purna tahsil three crop change to seven crops, Palum tahsil three crops change to six crops, Sailu tahsil five crops change to six crops, Sonpeth two crops change to six crops and Manvat three crops change to five crops crop combination and only Pathri tahsil was declining crop combination in five crops change to four crops in the study region in during 2000-2005 to 2006-2011.

CONCLUSION:

As a result of the application of Weavers technique there was no change in Pathri tahsil and Parbhani district was six crop combinations during the period of 2000-05 to 2006-2011. Physical, economic reasons and individual decision of farmers are responsible for the shift in crop combination during the period of investigation whereas increasing crop combination of crops tahsil to tahsil as a Gangakhed three crop change to five crop, Jintur tahsil five crops change to six crops, Purna tahsil three crop change to seven crops, Palum tahsil three crops change to six crops, Sailu tahsil five crops change to six crops, Sonpeth two crops change to six crops and Manvat three crops change to five crops crop combination and only Pathri tahsil was declining crop combination in five crops change to four crops in the study region in during 2000-2005 to 2006-2011.

REFERENCES: