

Crop Diversification in Jagadhari Block of Yamunanagar District of Haryana

Abstract

The technique of crop diversification has been investigated by various geographers working in various disciplines of the subject at spatio-temporal perspectives of crop diversification refers to the raising of a number of crops in a given area at a given period.

Keywords: Crop Diversification

Introduction

Jagadhari Block is the main study area of research which is mainly located in Yamunanagar district of Haryana, Jagadhari Block lies between 30°2'27" and 30°15'59" North latitude and 77°04'27" and 77°26'02" east longitudes. There are six towns and 166 villages which are administratively grouped in to Jagadhari Block of Yamunanagar of Haryana. The total area of the study area is 378.22 square kilometres. The study area has humid and sub-humid climate having 1200 to 1500 mm of annual average rainfall. The study area have a total population of 170882 persons (2001 census) with a density of 452 persons per square kilometre. The topographical patterns of the study area and its existence to geomorphic process have close relationship with climatic humidity of the recent and past geological periods. River Yamuna Forms its eastern position, which mark a gradual transition to the Ganga- Yamuna plain. The underground water in study area is generally fresh and suitable for domestic as well as irrigational purposes.

Objectives of the Study

The main objectives of the present research paper are examined in context of cropping patterns and crop diversification. The Study area testified the drastic changes in cropping patterns during the last 32 years. In this study, an attempt has been made to examine and identify the regional imbalance in cropping pattern since 1970-73. The Main objectives are as follows:

1. Explained the changes in cropping patterns and regional inequalities in relation to agricultural development.
2. Assessed the regional inequalities in crop diversification and crop concentration indices.
3. Suggested some schemes and specific recommendations for the redressal of regional inequalities in the levels of agricultural performance and agricultural development.

These objectives are realized concurrently in each part of the discussion of the spatial processes and the spatial patterns of crop diversification, crop concentration and crop combination analysis in Jagadhari Block.

Methodology and Sources of Data

The present research work is mainly based on the data related to the various aspects of natural conditions. Human interferences and agricultural functioning forms influencing the geography of agricultural development in terms of crop Diversification in a block of newly formed district- Jagadhari block of Yamunanagar district of Haryana. The data were processed with help of statistical techniques to achieve accuracy in interpretation.

The present study has been conducted through the following steps:

1. The unpublished revenue records Lal Kitab- an inventory book maintained by the village patwari of each and every village of study area for the period 1970-73 and 1999-2002 triennials were consulted to obtain land use, irrigation.
2. The published data are collected from Government publications such as census reports, District Gazetteers and assessment reports of Yamunanagar district.



Sanjay Kumar

Assistant Professor,
Deptt. of Geography,
J.V. Jain College,
Saharanpur

Himani

Assistant Professor,
Deptt. of Geography,
J.V. Jain College,
Saharanpur

3. The crop diversification were calculated with the help of Gibbs-Martin, S.S. Bhatia and Jasbir Singh's Techniques.

The above stated techniques were analyses with the help of statistical methods of agricultural relevance on maps with the help of suitable cartographic techniques. Detailed study of published and unpublished records, documents, and literature were also consulted, which was duly acknowledged in each part of the present study.

Crop Diversification

The techniques of crop diversification has been investigated by various geographers working in various disciplines of the subject at spatio-temporal perspective. Crop diversification refers to the raising of a number of crops in a given area at a given period. The keener the competition the higher the magnitude of diversification, lesser the competition greater will be the trend towards specialization or monocultural farming where emphasis is on one or two crops (Singh, Jasbir and Dhillon.S.S., 1994). In fact, it is obvious that greater the number of crops in a combination.

Requirement of Crop Diversification

The diversification in structural forms of agriculture such as cropping patterns, livestock structure or necessary to raise a variety of these forms which possess nearly an even proportion. There are other determinants which compel the farmers to keep crop diversification in practice.

1. Vagaries of weather compel the farmers to grow a number of crops so as to get some returns under adverse conditions of weather and
2. The traditional farm practices and peasant-way-to-life again compel the farmers to obtain most of their domestic requirements from the resources in their possession.

It has been observed that the practices of diversified cropping pattern is more useful and even significant for a peasant rather than a big farmer. The reason being:

1. A diversified cropping pattern provided employment to the family labour throughout the year, hence a good place for the work for the entire family members of a peasant is available throughout the year.
2. Again a diversified agricultural pattern helps in maintaining soil tilth because few soil enriching crops sequence and some leguminous crops can be raised in the farm and thereby helps in fixation of nitrogen from the atmosphere in the soils ; and
3. A diversified and varied agricultural pattern ensures the enhancement and increment in the farm income.

Therefore, such types of farm practices help very much directly to the farmers and provide a reliable source of livelihood. These views highlight the importance of such analysis.

Patterns of Crop Diversification

With the help of Gibbs. J and Martin, W (1962), the patterns of crop diversification are used and tested to calculate the crop diversification of 166 villages of Jagadhari block of Yamunanagar district of Haryana during 1970-73 and 1999-2002

A-Gibbs, J. and Martin, W. (1962)- Index of Crop Diversification

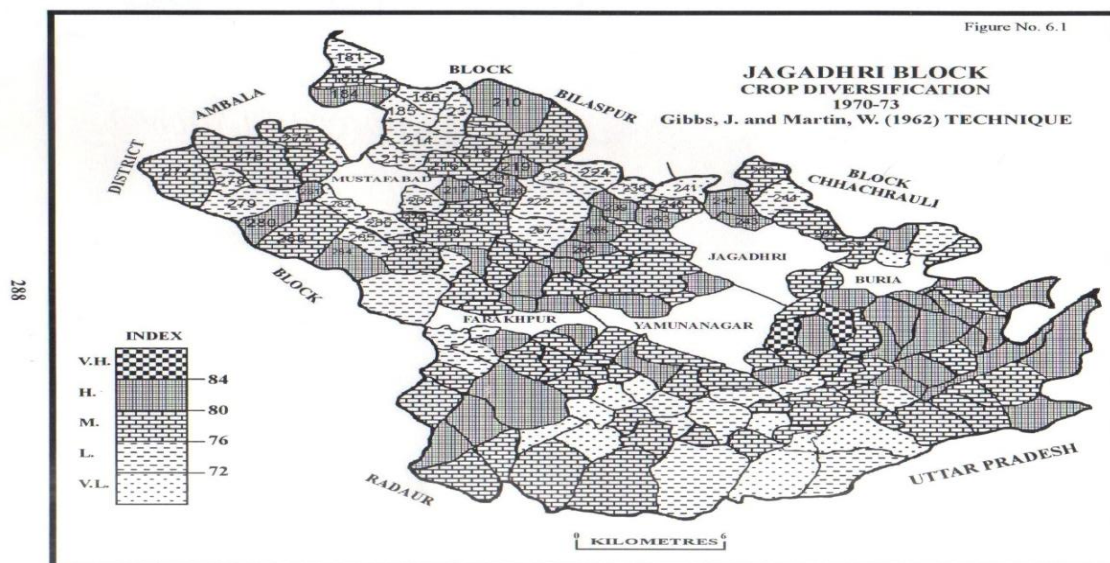
Gibbs. J and Martin, W have devised a quantitative technique while measuring the diversification in industrialization. But, the same technique is used for agricultural data in place of industrial data. It is a alternative for measuring the extent of crop diversification in the cropping pattern in an area, and the technique for calculating the index of crop diversification is as given below:

$$\text{index of crop diversification} = 1 - \frac{\epsilon x^2}{(\epsilon x)^2}$$

Where 'X' is the percentages of the total cropped area occupied by each or hectareage under an individual crop.

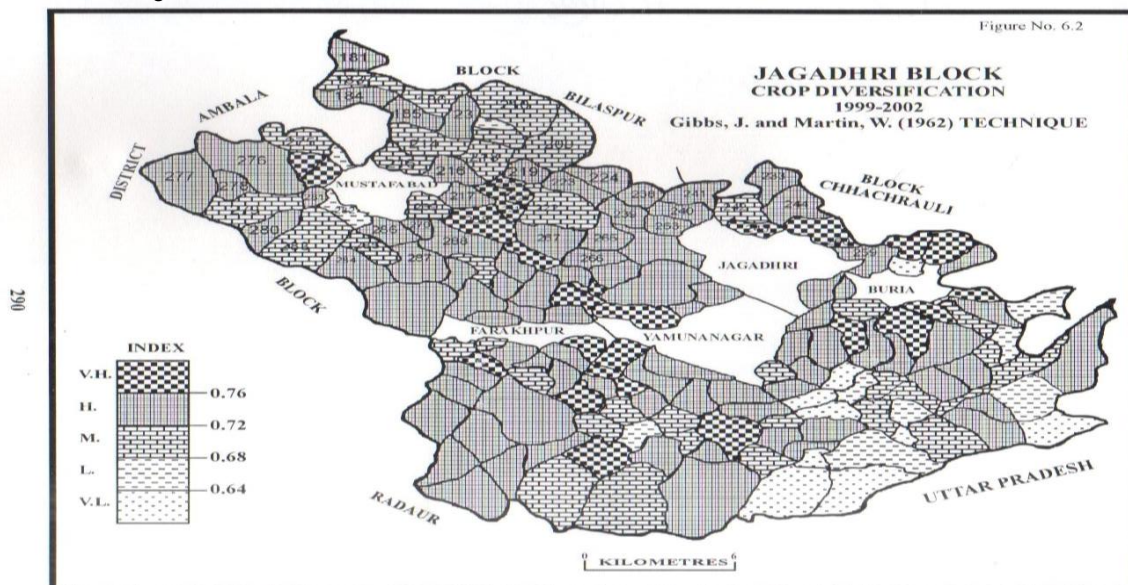
If the total area in a given region is devoted wholly to one crop (i.e. specialization), the index value is zero (0), and if it is evenly distributed among all crop the index value will be 0.90. Therefore, the index value of crop diversification varies from 0.00 to 0.90 in case of ten crops are considered. Hence, this technique considers the number factor besides the indices are directly related to the magnitude of crop diversification.

The choropleth map (Figure 6.1) highlights five types of areas of crop diversification during 1970-73 having an index value (i) very high diversification (more than 0.84), (ii) high (0.81 to 0.84). (iii) moderate (0.75 to 0.80) . Low (0.72 to 0.75) and very low crop diversification (less than 0.72) in Jagadhri block of Yamunanagar district of Haryana. The very high index of crop diversification (0.81 to 0.84) are concentrated in the form of patches in nearly forty seven villages of the study area, which indicates maximum diversification of crops in these area and these patterns are mainly associated with agro – climatic conditions. Consequently, wheat, paddy and sugar cane cover a dominating place in these areas. The moderate index of crop diversification (0.75 to 0.80) are prominent in the form of scattered patches in seventy five villages of the study area, where wheat, paddy sugar cane, fodder and vegetables are mainly grown. The low (0.72 to 0.75) and very low (less than 0.72) index of crop diversification are scattered in forty five villages of Jagadhri block during 1970-73, which provides a picture of minimum crop diversification (specialization of crops) in these areas. The index of crop diversification by Gibbs and Martin technique varies from a minimum of 0.66 in village Khurdi to a maximum of 0.87 in village Gadhauli of the study area. Sufficient development of tubewell irrigation facilities, enough amount of rainfall, deep and fertile fine loamy soils and high yield of wheat, paddy and sugar cane are the main constraints for the specialization of crops.



The chorpleth map (Figure 6.2) reveals five types of areas of crop diversification during 1999-2002 having an index value (i) very high diversification (more than 0.76), (ii) high (0.72 to 0.76), (iii) moderate (0.68 to 0.71), (iv) Low (0.64 to 0.68) and very low crop diversification (less than 0.64) in Jagadhri block of Yamunanagar district of Haryana. The very high index of crop diversification (more than 0.76) and high index of crop diversification (0.72 to 0.76) are concentrated in the form of patches in nearly one hundred and twelve villages of the study area, where more diversified cropping pattern are observed. These areas are mainly associated with fine loamy fertile soils with plenty rainfall and tubewell irrigation. Hence wheat, paddy and sugar cane play a significant role in these areas of Jagadhri block. The moderate index

green fodder and vegetables are mainly grown. The low (0.64 to 0.68) and very low (less than 0.64) index of crop diversification are scattered in nineteen villages of Jagadhri block, which provides a picture of minimum crop diversification (specialization of crops) in these areas. The index of crop diversification by Gibbs and Martin technique varies from a minimum of 0.66 in village Khurdi to a maximum of 0.87 in village Gadhauli of the study area. Sufficient development of tubewell irrigation facilities, enough amount of rainfall, deep and fertile fine loamy soils and high and high yields of wheat, paddy and sugar cane are the main constraints for the specialization of crops.



of crop diversification (0.68 to 0.71) are prominent in the form of scattered patches in thirty six villages of the study area, where wheat, paddy, sugar cane,

Conclusion

Crop Diversification refers to the raising of a number of crops in a given area at a given period, the

keener the competition the higher the magnitude of diversification. Diversification is an indicator of multiplication of agriculture activities, they have tested different techniques to solve the problem of crop diversification. Gibbs J. and Martin W. (1962) useful techniques for measuring crop diversification, which was thoroughly applied in the present research work of one hundred and sixty six villages of the Jagadhari block of Yamunanagar (Haryana).

References

1. Buchanan, R.O. (1968) "Some reflections on Agriculture Geography" *Economic Geography* Vol. 44 PP. 5-10.
2. Grigg, David (1965) "The logic of Regional Systems", *Annals of the Association of American Geographers*, Vol. 55, P 489 .
3. Rafiullah S.M. (1965)" A New Approach to Functional Classification of Towns", *The Geographer* Vol. XII. PP 40-53.
4. Singh. G.B. "Transformation of agriculture" *Kurukshetra Vishal Publications, University Campus 1979. P 129.*
5. Grigg, David, (1969) *The Agriculture regions of the world review and reflections" Economics Geography, Vol 55 P.489*