ABSTRACT

Agriculture is the mainstay of the people of North Bihar Plain and it constitutes the most important source of income in the region. It provides, directly or indirectly livelihood to a substantial proportion of the population and contributes a major share in the economy of Bihar. The agriculture of North Bihar Plain is mainly of subsistence type, where a majority of the farmers belong to the category of marginal landholdings. Therefore, the development of this sector of the economy is of prime concern. The main aim of agricultural development is to achieve a required amount of crop production for the growing population.

Agricultural operations are influenced by a combination of physical, techno-institutional and socio-economic conditions. The present work is an attempt to assess the agriculture in North Bihar Plain with reference to ecological conditions. The main objectives of the study are to examine the agricultural development in the study area with respect to land use pattern, cropping intensity, crop productivity and their correlates which are likely to cause regional variations in the levels of agricultural development.

North Bihar Plain forms a part of Indo-Gangetic Plain with a geographical area of 54,990 sq.km. comprising 22 districts of the state of Bihar. The region contains a total population of 55.17 million
persons, with an average density of 1003 persons per sq.km (Census of India, 2001). It possesses 58.4 per cent of the total geographical area of Bihar and a population of 66.57 per cent.

The present study is based on secondary sources of data for the period which extends over three points of time: 1985-90, 1990-95 and 1995-2000. For each time frame five successive years data were averaged. The district has been taken as an unit of study. Seventeen major crops which are grown in the region have been considered and they are grouped into: cereals, pulses, oilseeds and cash crops. The impact of ecological parameters on agriculture was analysed with the help of factor analysis technique considering North Bihar Plain as an area of study, as well as for productivity regions demarcated as high, medium and low. The computation work was done on SPSS Programme on ALPHA System.

The whole work has been divided into five chapters. The first chapter is devoted to the physical characteristics of the study area to deal with the structure and relief, drainage, climate and soil. North Bihar Plain is a levelled plain formed by the alluvial deposits. The slope of the plain as marked by the flow of river channels is from northwest to southeast. The region enjoys a tropical monsoon type of climate characterised by a seasonal change of rhythm corresponding to two main cropping seasons: *kharif* (summer crops)
and *rabi* (winter crops).

The second chapter gives an account of ecological parameters (pertaining to climate and soil) which influence the growth and development of crops. Chapter third incorporates an analytical frame of the study. This deals with the trends in crop cultivation with reference to land use pattern, cropping intensity, and growth in cropped areas, production and yield of crops.

Chapter four is devoted to deal with the conceptual framework of crop productivity and regionalisation of productivity in North Bihar Plain, the indices computed based on the method of Yang's Crop Yield Index. A correlation assessment has been worked out in the fifth chapter, on the basis of some selected important technological factors in the agriculture of North Bihar Plain, for the year 1999-2000. In order to establish an input and output relationship a set of eleven independent variables and one dependent variable (productivity index) were selected and analysed for North Bihar Plain considering it as a single unit of study and productivity regionswise. Further, it was attempted to determine the levels of agricultural development in the region with the help of a composite index.

The findings of the study reveal that agricultural development in North Bihar Plain seems to be more dependent on technological factors (including irrigation, chemical fertilizers (NPK),
High-Yielding Varieties (HYV) of seeds and agricultural machinery) rather than on ecological parameters. The regions which show a concentration of high degree of agricultural innovations are agriculturally advanced than the regions in which the farming is traditional and nature's role is dominant.

In the last the thesis is summed up with some of the recommendations if they are incorporated they can help in bringing the change in agriculture in the region.