CHAPTER – VIII
CO-RELATION MATRIX OF THE VARIABLES INFLUENCING AGRICULTURAL PRODUCTIVITY IN BEED DISTRICT

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CO-RELATION MATRIX OF THE VARIABLES INFLUENCING AGRICULTURAL PRODUCTIVITY IN BEED DISTRICT

INTRODUCTION –

The subject matter of Geography like that the other social and natural sciences has been going changes during the last few decades. The traditionally held view, Geography deal with distribution of the earth, is a challenge faced by contemporarily geographers. Advances in technology and scientific methods, have provided more accurate data and information about the various features of the geographical landscape, and this intern has provided geographers, an opportunity to search for the explanation about patterns of distribution of physical, economic, socio-cultural and biological elements and the relationship among them. Thus, starting for qualitative description, the study of geography now makes use of quantitative data in distribution analysis and interpretation of the spatial patterns and variations in socio-economic, biological and geographical elements.

The measurement of association among the different elements of the geographical landscape and differences of the spatial patterns, require the application of appropriate techniques. Geographers are familiar with the techniques of mapping and tabular analysis of data, even then the explanation of patterns of distribution trends to be discretion of the features observed. Where the explanation is provided, it is likely to be based on a subjective judgment, for example, maps of the distribution of rainfall and proportion of the area under forests to total geographical area may be compared, the pattern usually found in areas of high rainfall, the richness of natural vegetation is influenced by the number of factors such as physical
socio-economic and biological factors have great bearing upon it. The theoretical aspects of any phenomena occurring over the surface of the earth may not some times give very authentic information, but when it is provide on scientific ground then the facts and results became clearer.

In Geography, most of the aspects ate descriptive with the reasoning of how and why, are the most important enquires. Because, how and why provide an answer and support the argument discussed theoretically. In Geography, both qualitative and quantitative aspects have its importance which denotes the quality and quantity of any component. (Table 8.1)

Nowadays, the geography is not merely descriptive subject. The use of statistical techniques and quantitative methods by using computers have enabled geographers to bring out the most authentic and correct results from analysis of the data information, associated with a particular region. Geographical information system (GIS) has opened the new ways for geographers to interpret various kinds of bio-geographical problems within the region under study. Geographical Information Systems (GIS) are applied to find out exact situation and position of the various geographical facts. The analysis by using the computers, with the help of soft were programme, solves the different delicate agricultural problems within a short period of time.

Since the present attempt is associated with the various physical socio-economic and biological variables. Therefore, we have establish relationship between agricultural productivity on the one hand, and other variables on the other. Now, let us take variables one by one find out door relationship between the agricultural productivity and various other social economic and physical factors.
8.1 AGRICULTURAL PRODUCTIVITY AND FERTILIZER INPUT:

The agricultural productivity in Kg per hectare on the one hand and fertilizers input on the other, has been taken as two variables influencing agricultural productivity. The co-efficient of co-relation was calculated which comes to 0.39. This clearly indicates that the positive value of 0.39, though, is not very significant, yet it indicates that the fertilizer input in Kg per hectare as increases, the agricultural productivity also increases accordingly. The Beed district is a region, where there is scarcity of water and the application of fertilizer is generally restricted in dry region. This positive value of co-efficient correlation reveals that in areas where enough irrigation facilities are available, the use of fertilizer per hectare by the farmers is relatively higher. Hence, the yield per unit of area is also higher. It may be stated that the use of fertilizer certainly enhance the agricultural productivity, particularly in the region where sufficient water is available for irrigation.

8.2 AGRICULTURAL PRODUCTIVITY AND PROPORTION OF CULTIVABLE LAND -

The co-efficient of correlation is positive of 0.27 between the agricultural productivity per unit area and percent of cultivable land. Like fertilizer input in kg, the proportion of cultivable area has also positive relationship with the productivity per hectare of area. The cultivable land though sizable in Beed district, yet proportion of non-irrigated land is relatively higher, hence, the productivity per acre in relation to cultivation land is not much higher. The extensive agriculture is carried out by the farmers in order to subsist their own family members. Beed district is a region where no commercial and cash crop
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<th>Rainfall in MM</th>
<th>% of Landholding</th>
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<th>% of Oil engine</th>
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Source - Socio Economic Abstract Of Beed District 2000-01
are of greater importance due to the scarcity of water for irrigation. The cultivable land and the agricultural productivity have a positive relationship in the district. As the percentage of cultivable land increases, accordingly the productivity of agriculture also increases. (Table.8.2).

8.3 AGRICULTURAL PRODUCTIVITY AND NET SHOWN AREA

Percentage of net sown area on the one hand and the productivity of agriculture per hectare, on the other hand have been taken two variables to represent relationship between the two; It reveals very insignificant relationship but negative. Surprisingly, with the increase of net sown area, the productivity of agriculture per unit of area in kg declines. It means, that with larger size of net sown area, the decline in agricultural productivity has been observed in the region. This may be attributed for larger size of non-irrigated net sown area within the district of Beed.

8.4 AGRICULTURAL PRODUCTIVITY AND RAINFALL-

Contrary to expectation, the relationship between agricultural productivity, shows a negative relationship and also quite insignificant. The larger area in the district of Beed is based on monsoon rainfall; particularly for cereals while the co-efficient of co-relation value represent insignificant relationship with per unit area of agricultural productivity. In other words, the distribution of rainfall which is not reliable and it is most erroneous and unpredictable. Hence, rainfall depicts a negative relationship with the productivity of agriculture in Beed district.
<table>
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Source: By Statistical Correlation Method Using Microsoft Excel
8.5 AGRICULTURAL PRODUCTIVITY AND IRRIGATED AREA-
As per expectation, the relationship between agricultural productivity and irrigated area represent positive relationship. As it is clear from the coefficient of co-relation value, with the increase of irrigated land, the agricultural productivity also increases. Hence, agricultural productivity per unit area also increases, within the district of Beed.

8.6 AGRICULTURAL PRODUCTIVITY AND LAND HOLDING-
The co-efficient of co-relation value between these two variables is (-0.31). It clearly indicates that with large size of land holding; the agricultural productivity per unit of area decline. This may be attributed to low input per unit of area in the larger size of land holding. In other wards, the agricultural productivity is higher for small land holders, within the district of Beed.

8.7 AGRICULTURAL PRODUCTIVITY AND WORKERS IN AGRICULTURE AND MANUFACTURING:
The co-relation matrix represents negative insignificant values for the agricultural workers and worker in manufacturing. Due to the application of mechanization, the importance of agricultural workers, on the one hand and workers in the manufacturing have no impact upon the agricultural productivity. Therefore, negative relationships have been represented between the productivity per unit of area on the one hand and the percentage of manufacturing on the other hand within the district of Beed.
8.8 AGRICULTURAL PRODUCTIVITY AND PLOUGH, ENGINES, BULLOCK CART AND TRACTORS:

The co-relation matrix between agricultural productivity per unit area on the one hand, and percentage of wooden ploughs iron ploughs, engine, electric pump, bullock cart and number of tractors on the others have been calculated. All give positive values of co-efficient of co-relation, but all of them are insignificant. This depicts that these variables have not significantly influenced the agricultural productivity per unit of area in different parts of Beed district.

8.9 AGRICULTURAL PRODUCTIVITY AND ROAD PER 100 SQ KM AREA:

Surprisingly, the value of co-efficient of co-relation between agricultural productivity per unit of area on the one hand, and road length per hundred Sq Km of area shows a very significant positive relationship. It is clear from the facts that the value of co-efficient of correlation is (0.61). This means that with increasing, means of accessibility like village road, district road, state high way and national high ways, have provided easy transportation facilities to the farmers, to send their agricultural produce to market center for sale. It has encouraged to farmers to higher inputs and investment in agriculture which in turn has positively influenced agricultural productivity per unit of area in several parts of Beed district.

8.10 AGRICULTURAL PRODUCTIVITY AND PERCENTAGE OF RURAL POPULATION -

Due to low degree of mechanization and less implementation of modern facilities still in a country like India has resulted in the large size of rural population which is still engaged in agricultural activities. This shows, that with higher proportion of rural population, the agricultural productivity
per unit area lagging behind, than many developed and advanced regions. Therefore, productivity and rural population show positive insignificant relationship in Beed district.

8.11 AGRICULTURAL PRODUCTIVITY AND PERCENTAGE OF URBAN POPULATION -

It represents negative and insignificant relationship with the agricultural productivity. It may be stated that with the urbanization, the agricultural productivity go on declining within the district of Beed.

8.12 AGRICULTURAL PRODUCTIVITY AND DENSITY OF POPULATION -

The co-relation co-efficient value for agricultural productivity per unit of area and density of population has shown a negative insignificant relationship within the district of Beed. The co-efficient value revels that with increasing density of population per Sq Km of area, the productivity of agriculture declines to a certain extent. The optimum size of population gives maximum return from the agriculture. The pressure of population creates a number of problems which adversely influence the agricultural productivity per unit of area. The higher size of population results in the lower per capita income which is a common rule which in turn influence low inputs and low investment per unit of agriculture area in such regions. Hence, the agricultural productivity per unit area and density of population shows negatively relationship within the district of Beed.

8.13 AGRICULTURAL PRODUCTIVITY AND LITERACY -

Though positive insignificant relationship between agricultural productivity and literacy rate, represent the increasing trend of agricultural productivity per unit area. The farmers, who are relatively educated, apply
their Knowledge, intelligence and expertise in the practice of agriculture. Literate farmers are socially much aware and through all means, give much attention for agriculture. Hence, with increasing literacy rate the productivity of agriculture per unit of area increases within the district of Beed.
REFERENCES