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Geographical Study of Crop Combination in Nashik District Maharashtra State, India

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Abstract:
Physiography, temperature, rainfall, soil and irrigation affect agricultural production and crop distribution. Weaver's method has been used to study crop combination in Nashik district. For this, agricultural data has been obtained from the Nashik district statistical department and statistical processing has been done on it. Total Geographical area of the district is 15530 sq. km. which is about 5.04 percentage of total area of the state. The average height of the district is 565 meters from the mean sea level. In the present paper an attempt has been made to study the agricultural crop combination of Nashik district. The entire district has identified six types of crop combination. Crop combination of Nashik District the said study is 2022-23 year.

Keywords: Agriculture, Crop Combination, Weaver's method, Rabi and Kharif

Introduction:

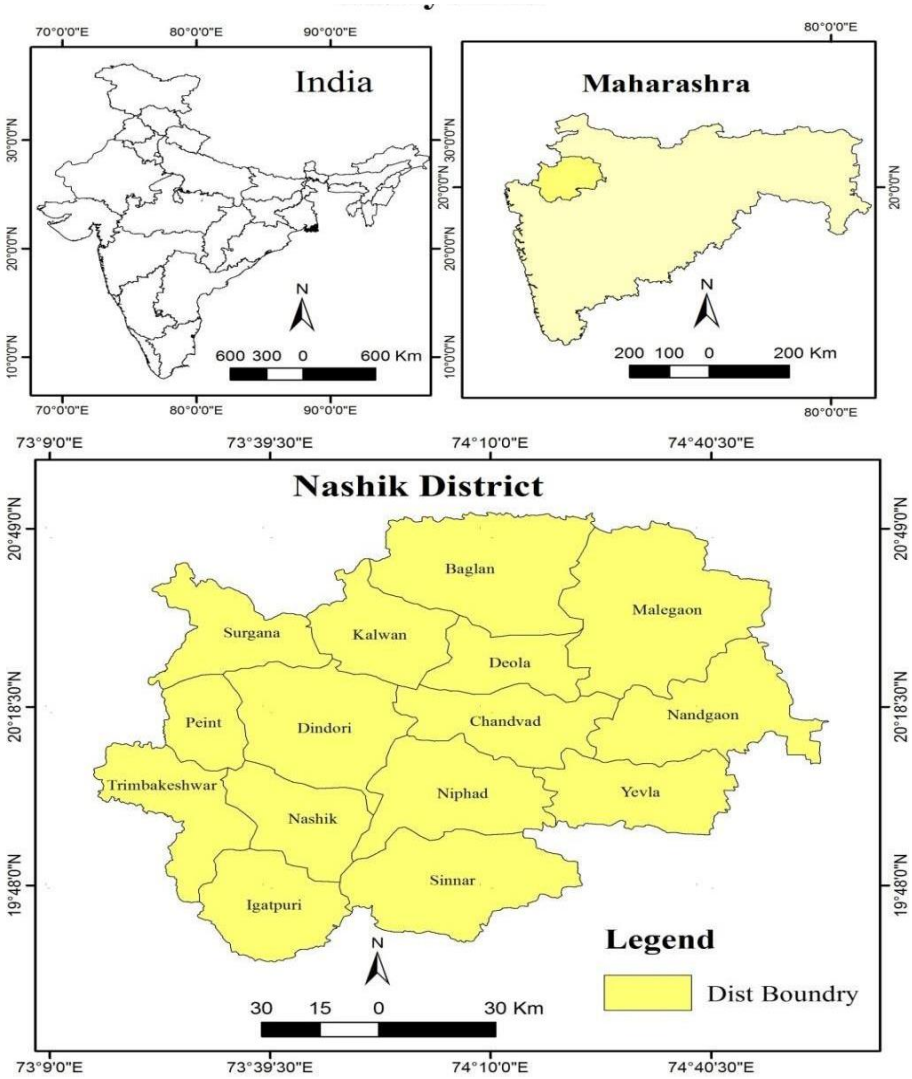
Agriculture is said to be the backbone of the economy of countries like India. Because in countries where there is diversity in seasons, this diversity is seen in crops in geographical areas, mainly in the two crops of Rabi and Kharif. Many factors affect agriculture, due to these factors we see diversity in agriculture. In this, mainly natural factors such as topography, rainfall, temperature, humidity, soil type affect, as well as social, economic, political, economic, technological, market factors also affect. Along with agriculture, dairy farming and poultry farming are complementary businesses. Both these businesses are important as primary businesses. Agriculture and agricultural production in any part of the world are influenced by physical, social and economic factors. Agricultural land use is a component of the basic structure of natural resources. At the same time, land is an important factor in the agricultural sector because it is impossible for humans to create it because it is natural. Therefore, the characteristics and fertility of the land affect the crops. Also, this land affects crop production, cropping pattern is a central factor in agricultural land use.

The distribution of cropping patterns in any region is a result of the characteristic crop combination. In short, in regions where natural, social and economic conditions are good, all crops are grown. In such regions, technology and irrigation facilities are available, and in places where farming is done only on natural factors, farming is done only as long as water is available, in such areas, only one or two crops are grown. Various methods of crop combination are invited by various scientists. A course reviews of literature reveals that Weaver, Scoit, Coppock, Doi (1959), Thomas (1963) etc. are some of the important

contributors to this field. A study has been conducted in Nashik district to study crop combination using Weaver's.

Study Area:

The Nashik District of Maharashtra State has been selected for proposed work. The Nashik is one of the major agriculturally and industrially developed districts in the North Maharashtra. The extent of the district lies in $19^0$35'N and $20^0$52' latitude $73^0$16'E and $74^0$56'E longitude with an area of 15530 sq.km total population of the district is 6109052 of which male and female are 3,164261 and 2944791 respectively. Jalgaon district is at its east and northeast, Surat and Dang District is at north. Thane District is at south west and west Aurangabad district is at south east and Ahamadnagar is at south. There are 15 Tehsil in Nashik District Malegaon is the largest Tehsil with 12% area and Peint is smallest Tehsil with 3.63 % area in the district.



Map No 01: Location Map

Aim and Objectives:

The main objective of this research is to study crop combination in Nashik district.

1. To study of crops in tehsil wise.
2. To Study of crop combination in Nashik district.

Data Base and Methodology

The Present Study mainly based on secondary data sources, collected from the economic survey and district statistical department of the Nashik district. For the present study whole district is considered as a unit. According to the tehsil of Nashik district, crop data has been taken and converted into percentage. Also, the data is converted into percentage conversion for actual land use and the changes are also shown. In short, statistical information is processed and classified comparatively in graphs. Crop combination of Nashik District the said study is 2022-23 year Microsoft excel is used for statistical techniques to compute the least sum of squared deviation and variance and lowest standard deviation for crop combination. Weaver's method has been applied to delineate the crop combination for the following Formula: $SD = f\sum d2/n$, where: d is the difference between the actual crop percentages in a given area. n= number of crops in a given combination.

Results and Discussion:

There are a total of 15 tehsils in Nashik district. According to these tehsils, the natural factors like topography, rainfall, temperature in Nashik district have affected agriculture. Along with this, social, economic, technological factors also affect various crops in Nashik district. Due to this, there is diversity in crop production and area in Nashik district. These are mainly rice, pulses, grapes, maize, oilseeds, bajara, wheat, sugarcane, vegetable, jawar. Crop combinations have been drawn from these crops after studying them. John C. Weaver's minimum deviation method has been adopted to classify crop combinations in Nashik district. Crop combination there are 02 crop combinations in Nashik district in Surgana and Pet tehsils. The most important reason for this is that the area of two crops, rice and pulses, is more in these areas. In places where rainfall is high and summers are dry, rice and pulses are mainly grown. Also, in Trimbak tehsil, the production of three crops, rice pulses and all seeds is the highest. At the same time, in Kalvan tehsil, although the area of this crop is more, other crops are also grown in it, mainly including brick, vegetables, oil seeds, Bajara sugarcane**.** In short, the reason behind the diversity in the area of crops in Nashik district according to the tehsil is that the topography, rainfall and temperature of Nashik district are all natural factors. Also, in the areas where all the crops are grown, irrigation facilities are more in place, due to which crops are grown in both Rabi and Kharif seasons. Along with this, social, economic and technological factors are also affected. Most importantly, Nashik district is famous for two crops, namely Graphs and Onion. According to this method, diversity has been observed in crop combinations in Nashik district. In it, 2 crop combinations are seen in Surgana tehsil, one crop combination in Kalwant tehsil, three crop combinations in Deola tehsil, area or production of all crops is taken in Baglan Malegaon Nandgaon tehsils, also three crop combinations are seen in Chandwad district, four combinations in Dindori tehsil, 2 crop combinations in Peth tehsil, three crop combinations in Trimbak tehsil, four crop combinations in Nashik tehsil, four crop combinations in Igatpuri tehsil, six niphads in Sinnar tehsil and six and four crop combinations in Yeola tehsil. This means that there is diversity in crop area in each tehsil. The crops Rice and pulses are dominant in Surgana (Rice 65.91% &Pulses 23.57%) and Peth(Rice 64.57&Pulses 22.94%) tehsil. Along with these major crop grapes, sugarcane, oilseeds are also associated. In the tehsil Devala, chandwad and Trambakbajara, vegetables and pulses are the major crops cultivated in association with maize, oilseeds and other crops. Baglan, Malegaon, Nandgaon and Sinnar tehsil are having all crops combination in the district. (Table No 01)

Table no 01: Result in crops combination

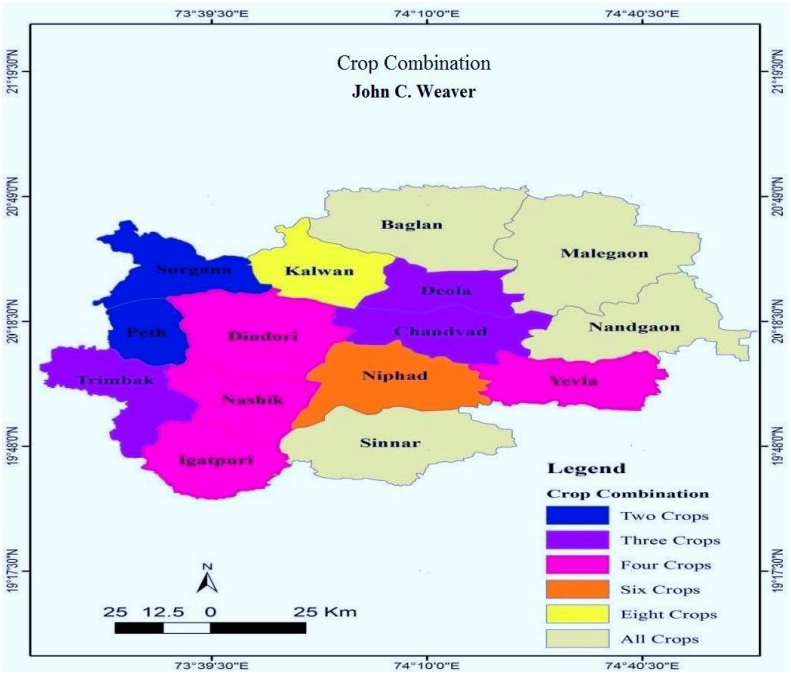
Sr. No	Tehsil	Crop Combination	Crops

1	Baglan	10	All crops
2	Chandvad	3	BVM
3	Dewala	3	BMV
4	Dindori	4	PORW
5	Igatpuri	4	PVOS
6	Kalvan	8	MVOBRPWS
7	Malegaon	10	All crops
8	Nandgaon	10	All crops
9	Nashik	4	GOVW
10	Niphad	6	GVWPSO
11	Peth	2	RP
12	Sinnar	10	All crops
13	Surgana	2	RP
14	Trambak	3	RPO
15	Yewala	4	MVBP

Abbreviations: R-rice, P-pulses, G-grapes, M-maize, O-oilseeds, B-bajara, W- wheat, S-sugarcane, V-vegetable, J-jawar.

The Nashik district is silent subsistent in crop production. The total geographical area of the district about 50 % areas is cultivable land. The cash crops and rice is cultivated in the high rainfall areas of the district and on the other hand oilseeds, pulses, jawar and bajara crops are cultivated in low rainfall area. The largest cultivable land is observed in Baglan (93.88%) tehsil and lowest in Dindori (15.75%) tehsil in the district. In the study area it is observed that Surgana and Peth tehsils having two crop combinations and Dewala, Chandvad and Trambak tehsils having three crop combinations. The four tehsils named Baglan, Malegaon, Nandgaon and Sinnar having all crop combinations. (Map 02)

Map no 02: Crop Combination in Nashik district



Conclusion:

According to John C. Weaver's crop combination there are 02 crop combinations in Nashik district in Surgana and Pet tehsils. The most important reason for this is that the area of two crops, rice and pulses, is more in these areas. In places where rainfall is high and summers are dry, rice and pulses are mainly grown. Also, in Trimbak tehsil, the production of three crops, rice pulses and all seeds is the highest. At the same time, in Kalvan tehsil, although the area of this crop is more, other crops are also grown in it, mainly including brick, vegetables, oil seeds, Bajara sugarcane**.** In short, the reason behind the diversity in the area of crops in Nashik district according to the tehsil is that the topography, rainfall and temperature of Nashik district are all natural factors. Also, in the areas where all the crops are grown, irrigation facilities are more in place, due to which crops are grown in both Rabi and Kharif seasons. Along with this, social, economic and technological factors are also affected. Most importantly, Nashik district is famous for two crops, namely Graphs and Onion.

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