



ANLYSIS OF CROP CONCENTRATION AND CROP COMBINATION IN SIKAR DISTRICT OF RAJASTHAN

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1. ABSTRACT :-

This study covers crop concentration & combination which both help to understand the agricultural patterns of study area. Both these two concept strongly show the combinations of terrains & social balance of an area to map the cropping pattern. This study area is located between 27°7' to 28°12' North Latitudes and 74°41' to 76°5' East longitudes and encompasses an area of 7732 square k.m . The spatial distribution of crop concentration and combination maps was find out by simple statistical methods. Result of the study indicting the presence of wide spatio-temporal variation of crop concentration & combination in the agricultural period 2016-17 the tehsils. key words : Crop concentration, crop combination, cropping pattern.

2. INTRODUCTION :-

In India, growing scarcity of agricultural land is a big problem. The same result also has found in sikar district of Rajasthan state. The agriculture have an important role in every economic system. Distribution and utilization of agriculture is depend on various physical and non-physical factors. Many quantitative techniques are available to understand the different agricultural pattern. In present study the Agricultural crop concentration & combination is choosed to shows sikar district's agricultural pattern.

3. STUDY AREA :-

Sikar district is located in the north eastern part of Rajasthan state and extends between north latitudes 27°7' & 28°12' and east longitudes 74°41' & 76°5'. It's total geographical area is 7732 sq. km. It is bounded on the north by churu & Jhunjhunu districts of Rajasthan state and Mahendergarh district of Haryana state, on the west by churu and Nagaur districts and on the south by Jaipur district of Rajasthan State. The present study was conducted in Sikar district of Rajasthan. This district is having six tehsils with the total geographical area of 773200 hectares. The climte of this area is semi dry and the mean maximum daily temperature during the summer season ranges from 25°C TO 30°C and mean maximum temperature during winter ranges from 20°C to 25°C. Mean annual rainfall of the district is 350 to 674 mm.

Locational map of Sikar District



4. OBJECTIVES :-

The main objectives of the study is to bring out the cropping patterns of sikar district of Rajasthan.

- Describe the crop concentration of sikar district .
- Find out the crop combination of sikar district.
- To explore the spatio-temporal changes of crop concentration & crop combination in the district in the 2016-17 agricultural years.

5. METHODOLOGY :-

The study is entirely based on the secondary data sets of Sikar district statistics & economic department based on the year of 2016-17 weaver’s & Bhatia’s methods is applied for present study.

Bhatia’s Method : —

Index for determining concentration of crop ‘a’. =

$$\frac{\text{Area of crop 'a' in the component area unit} / \text{area of all crop in the component unit}}{\text{Area crop 'a' in the entire country} / \text{area of all crops in the entire country}}$$

Crop Combination is calculated by Weaver’s Method :

$$SD = \sqrt{\frac{\sum d^2}{n}}$$

Here

D = Difference (difference between theoretical crop % & Actual crop %)

N= Number of crops in given combination.

6. RESULT & DISCUSSION :-

CROP CONCENTRATION :-

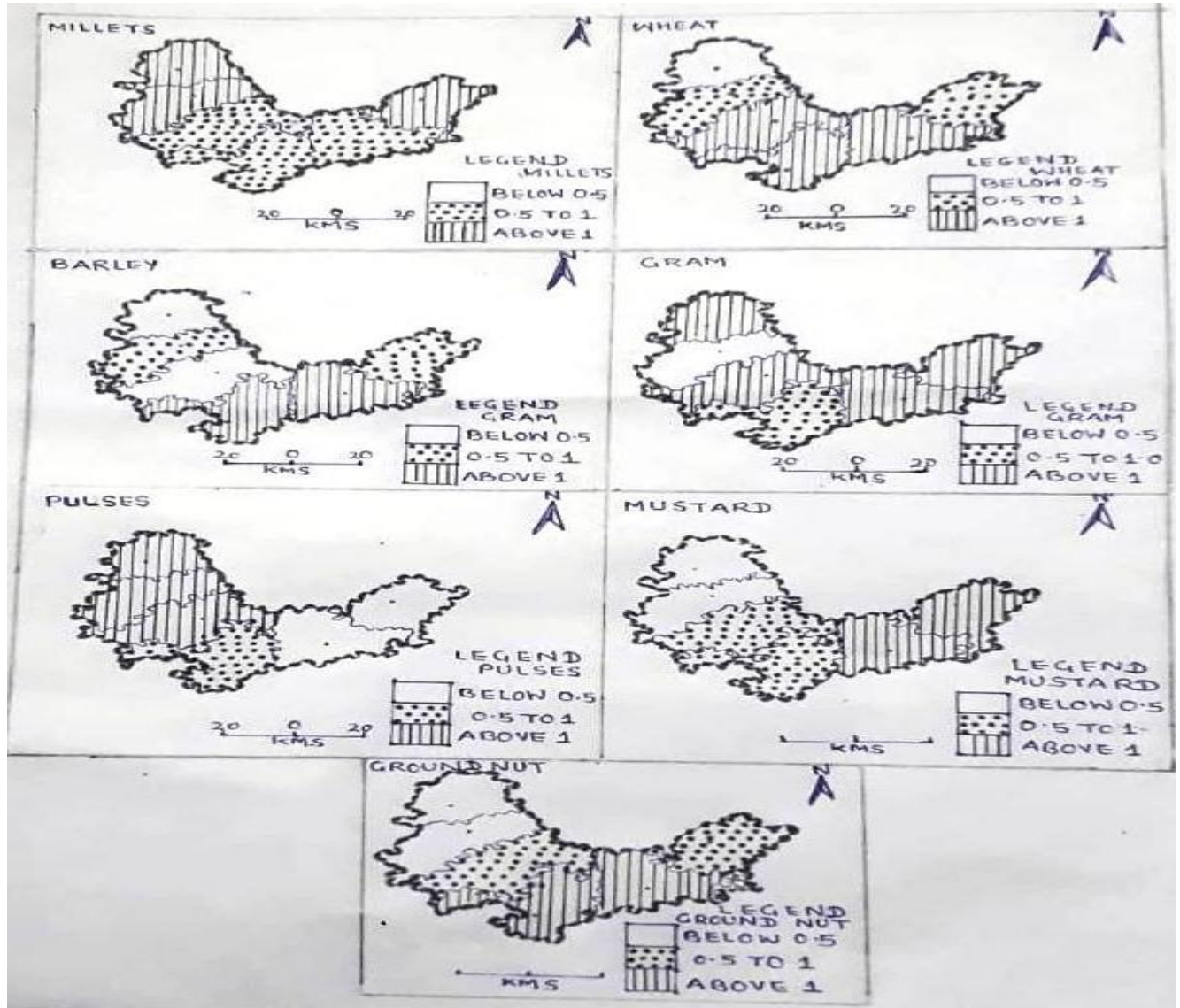
The crop concentration is defined as spatial strength of crop which is control by the present physical & socio-economic condition of an area. The crop concentration maps were prepared by the location quotient method of Bhatia (1965). This study is based on the tehsil level of the study area to find the spatial high strength of the particular crop by the formula of Bhatia. The higher index values present high concentration and lower values present low concentration. By using the index value that study area is divided into three categories known as high (above 1) Moderate (0.5 to 1) & low (below 0.5).

The following table no. 1 shows the index of crop concentration of the sikar district. The fig no. 2 shows the crop concentration of the study area.

Table no. 1 Index of crop concentration

S.No.	Tehsil Name	Millets	Wheat	Barley	Gram	Pulses	Mustard	Ground nut
1	Fatechpur	1.37	0.22	0.27	2.14	2.28	0.15	0
2	Lachhamangarh	1.18	0.60	0.54	0.44	2.02	0.45	0.02
3	Sikar	0.87	1.08	0.48	1.16	1.42	0.84	0.79
4	Danta Ramgarh	0.86	1.35	1.59	0.98	0.74	0.90	1.6
5	Sri Madopur	0.93	1.27	1.78	1.02	0.19	1.29	1.78
6	Neem ka Thana	1.09	0.77	0.69	1.16	0.05	2.11	0.83

Fig no. 2 crop concentration (Sikar District)



CROP COMBINATION :-

Normally the crops are grown in different combination and rarely a single crop grown in a major part of an area. In this study , the crop combination is determined by the help of weaver’s method. For the determination of the minimum deviation the standard deviation method was

used which is as

$$SD = \sqrt{\frac{\sum d^2}{n}}$$

Where 'd' is the difference between the equivalent crop area percent and actual crop area percent and n is the number of crops in given combination. The crop combination which have minimum deviation value has decided the crop-combination of the related (concerned) tehsil.

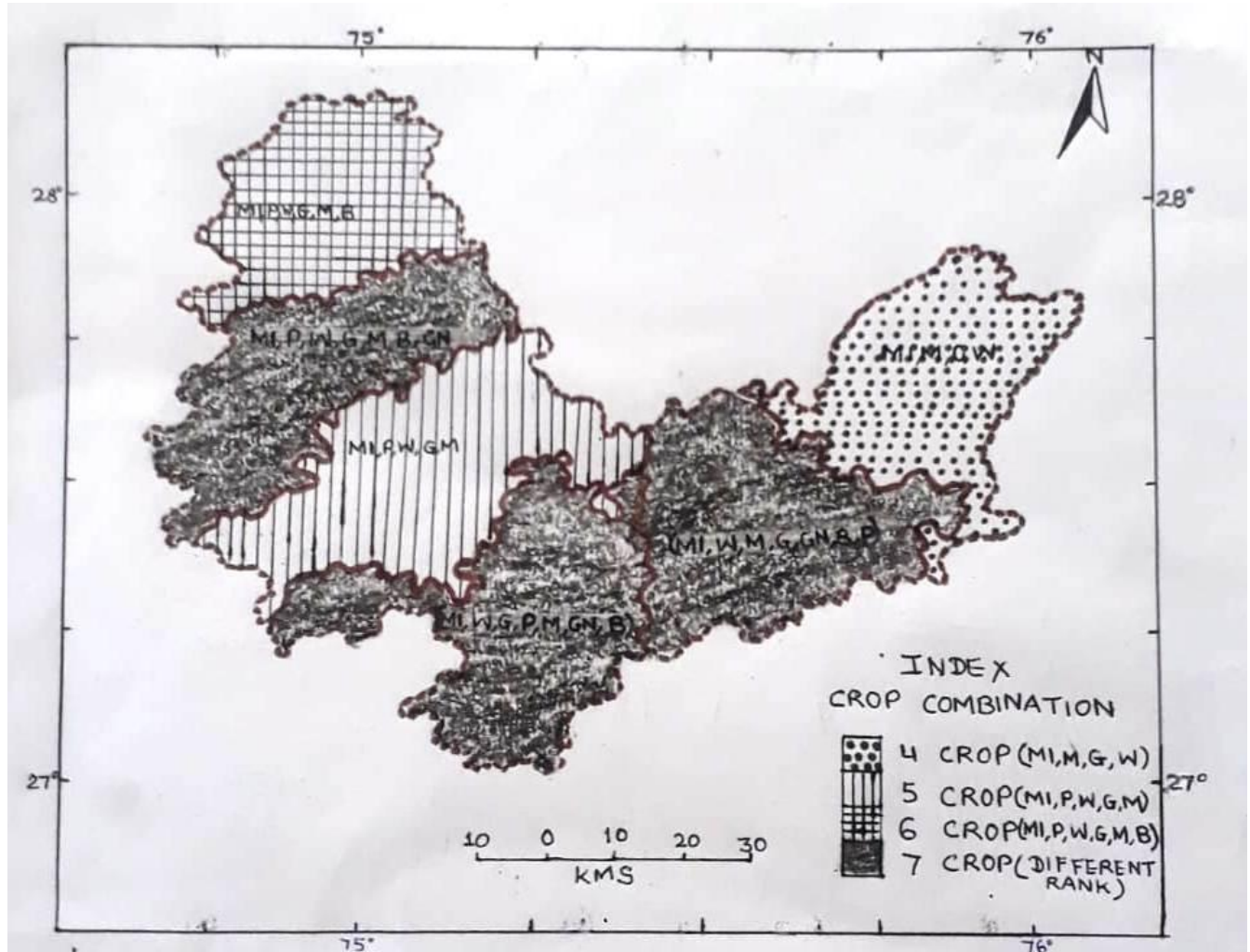
Table : 2 Theoretical crop % according weaver

1	Monoculture crop 100% of the total harvested crop land in one crop
2	Two crop combination 50% in each of the two crops.
3	Three crop combination 33.3% in each of the three crops.
4	Four crop combination 25% in each of the four crops.
5	Five crop combination 20% in each of the five crops.
6	Six crop combination 16.7% in each of the six crops.
7	Seven crop combination 14.3% in each of the seven crops.

Table 3: Crop combination region of Sikar District

Sr.No.	Tehsil Name	Crop Region (Crop-Combination)	Crop sequence in Combination
1	Fatehpur	6	Millets, pulses, wheat, gram, mustard, Barley
2	Lachhamangarh	7	Millets, pulses, wheat, gram, mustard, Barley, Ground nut
3	Sikar	5	Millets, pulses, wheat, gram, mustard
4	Danta Ramgarh	7	Millets, wheat, gram, pulses, mustard, ground nut, Barley
5	Sri Madopur	7	Millets, wheat, mustard, gram, ground nut, Barley, pulses
6	Neem ka Thana	4	Millets, Mustard, gram, wheat

Fig No. 3 Crop combination (SIKAR DISTRICT)



NOTE – MI – MILLETS, W- WHEAT , B- BARLEY, G-GRAM, P-PULSES, M-MUSTERD, GN- GROUND NUT

The results shows that study area have four to seven crop regions. Seven crop combination found in Lachhamangarh, Data Ramgarh, Sri Madopur tehsil, Six crop combination found in Fatehpur tehsil, five crop-combination found in Sikar tehsil and four crop-combination available in Neem ka Thana tehsil. The millets cultivation given the first rank crop in six tehsil of sikar district.

CONCLUSION:-

The crop-combination and crop concentration both the concept help to understand the agricultural pattern of any area. The study shows that cropping pattern of sikar district has influenced by the physical & Local socio-economic condition. Due to this it help to understand



agricultural activities & choosing right crops by farmers. The study also shows that there are seven crops occupies in the study area. These crops are: millets, wheat, barley, gram, pulses, mustard and groundnut. Crop combination analysis also shows that millets is the first ranking crop in all six tehsil. Pulses is the second ranking crop in Fatehpur, Lachhamangarh and Sikar tehsil. Wheat is the second ranking crop in Data Ramgarh and Sri Madopur tehsil and mustard is the second ranking crop in Neem Ka Thana tehsil. In Fatehpur tehsil pulses and gram have high crop concentration, in Lachhamangarh tehsil millets, in Sikar tehsil pulses, gram, wheat crop, in Data Ramgarh groundnut and barley crop, in Sri Madopur groundnut, barley, mustard, wheat and gram crop and in Neem Ka Thana tehsi mustard, gram, millets crop have high concentration. In short it can be said that study area is primarily based on agriculture. The socio-economic condition of the farmer, policy of the government and the life of the people is directly and indirectly controlled by agriculture.

7. REFERENCES : -

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