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Cropping Pattern and Crop Ranking In Chamarajanagar District, Karnataka: A Geographical Study

[1]Kavitha G. [2]Arun S. Oddin. [3]Prashant S. Mavarakara
[1]Lecturer in Geography, University College Managlore-01
[2]BBA, BCA, B.COM College, Nehru Nagar, Belagavi
[3]Faculty, Dept of Geography, MES Arts and Commerce Collage Mudalgi

***Abstract*:** - Agriculture, crop ranking play a vital role in agriculture development. In this study mainly the ranking of the crops has been analyzed from the year 2000-01 and 2020-21 by using secondary data, different taluks of district is having different ranking in the different year. The production of crops is depends on the soil, temperature, rainfall, irrigation and agriculture technique, each taluk having different soil texture, availability of water resource. In this attempt have been analyzing to cropping pattern, and crop ranking of the study region. Food crops were dominated because of this study area having dry-agro climatic zone, which is suitable for crops like paddy maize Ragi and Jowar, sugarcane, oilseeds and vegetable etc.

Keywords: - Cropping Pattern, Crop Ranking, Chamarajanagar, and Karnataka.

INTRODUCTION

Farmers are growing numerous of crops in the field rather than single crop. The distributional pattern of crops in any region is an outcome of predominance of certain crop or combination of crops. This is a term of emergence of typical crop combination. Cropping pattern in study region has undergone an evolutionary process. The soil and other natural environmental factors, along with the socio-economic factors, affect the cropping pattern in study region. Land-use is an important aspect of studies in agriculture geography. Cropping pattern means the production of area under various crops at a point of time. It is dynamic concept because no cropping pattern can be said to be ideal for all times to a particular region. It changes in space and time with a view to meet requirements and is governed largely by the physical as well as cultural and technological factors. The change in cropping pattern in particular span of time clearly indicates the changes that have taken place in the agricultural development. These changes are brought about by socioeconomic influence.

STUDY AREA

The study area forms a distinct land unit, besides being a cultural unity lying between 76°.24’ and 77°.43’ east longitudes and 11°.32’ and 12°.16’ north latitudes. It is bordered by Mysore and Mandya district of Karnataka state in the North, Nilgiris and Coimbatore districts of Tamilnadu state in the South-East, Waynad district of Kerala state in South-West. It has Geographical area of 5671.71 Sq. Kms. Chamarajanagar district lies in the southernmost part of Karnataka state. The general elevation of the district ranges between 700 to 900 meters above sea level. The district is almost surrounded by eastern and western Ghats where some places are having an elevation of more than 1200 meters above sea level.

OBJECTIVES

To Assessment The Ranking Crops of Chamarajanagar District.
To Know the Cropping Pattern of the Study Region

METHODOLOGY

Cropping pattern in our study is mainly focused on 5 techniques which are ranking of crops, crop combination, crop diversification, crop concentration and intensity of cropping. Present study is based on secondary data, considering 2 periods (2001- 02 and 2020-21), from 'Chamarajanagar district at a glance' book.

Crop Concentration techniques is categorized in to 3 ranges; high, medium and low using below mentioned formula.

Categories	Range
Low	Less than (Mean – 0.425*SD)
Medium	Between (Mean ± 0.425*SD)
High	More than (Mean + 0.425*SD)

RANKING OF CROPS

The percentage area under each crop was ascertained simply by ranking them for each taluks in order to have percentage of the total net sown area occupied by each crop. Ranking of crops gives an insight into the geographical reality of the cropping pattern. Moreover, ranking of crops helps in knowing the crops which compete with each other to gain more hectares under cultivation. A judicious use of land with adequate inputs in fact can help in raising the agricultural production even in the less fertile, soil. Thus, the study is useful in reducing the inter regional disparities in the agricultural income and economy. Unless the major crops of the districts are studied in their ranking order and the areal strength of each crop is determined, an appropriate association of soil and soil enriching crops for each situation cannot be ascertained.

Ranking Method

Ranking Method can be studied by descriptive and quantitative ways to delineate the ranking of individual crop according to their areas of importance in each component unit. The crop with the large percentage share to the net sown area forms the first ranking crop and the crop with the next largest share becomes the second ranking crop. Similarly calculations have been made up to 10th ranking crop and the resultants have been plotted for the year 2001- 02 and 2020-21.

CROP RANKING:

Results

The Ranking obtained for 10 main crops in the District to identify the relatively significance of individual crop in cropping pattern.

First Ranking Crop:-Four crops viz. Sugarcane, Pulses, Maize and Paddy in 2001-02 and four crops in 2020-21 are identified occupying first rank namely Pulses, Oil Seeds, Maize and Paddy. Table shows taluks and area of first ranking crops in the district. Paddy is the major crop that stands first and is found to have the largest coverage in Yalanduru taluk from 2001-02 to 2020-21 because it has the largest area under canal irrigation in the district. Moreover paddy grows well on light black soil which is abundant in that taluk.

Maize is the major crop which stands first and have largest coverage in Kollegala taluk from 2001-02 to 2020-21 because of black soil. Moreover canal and tube well irrigation are also responsible for the growth of maize cultivation. In Chamarajanagar and Gundlupete taluk the crops were changed in both decade i.e., Sugarcane replaced Pulses (Chamarajanagar taluk) and Pulses replaced Oil Seeds (Gundlupete taluk) because of the decrease of the all types of irrigation as well as decrease in the net irrigated area. The reason of decrease of pulses in Gundlupete Taluk is because of no canal irrigation as well as of rainfall variability.

Second Ranking Crop:-The total four crops are observed at a second rank in the study region, namely Maize, Jowar, Ragi and Pulses. In Chamarajanagar and Gundlupete taluks, the second ranking crop shifted from Pulses to Maize and Jowar to Pulses respectively. In Kollegala and Yalanduru taluks, Ragi and Pulses remained the second ranking crop in both the decade. The dominance of Ragi and Pulses are a staple food crop of the study region may be contributed more to the high population pressure necessitating self sufficiency in food grains.

Third Ranking Crop:-Five crops are identified as a third ranking crops in study area. These crops are Paddy, Ragi, Jowar, Sugarcane and Cotton on third ranking in the study region show in. In Chamarajanagar taluks, the third ranking crop shifted from Ragi to Jowar. In Gundlupete, Kollegala and Yalanduru taluks, Cotton, Paddy and Sugarcane remained the second ranking crops in both the study periods. Five crops have been grown in the study region as third ranking crops during both study periods, the favorable climatic conditions, rainfall and soil conditions might have boosted to grow these five crops as third ranking crops.

Fourth Ranking Crop:-In all the taluks, the fourth ranking crops shifted from one into another crop. Oil Seeds are cultivated as fourth ranking crops in two taluks viz., Gundlupete and Kollegala and Jowar in Chamarajanagar taluk and Ragi were grown in Yalanduru taluk during 2001-02 Similarly, Oil Seeds are replaced by Jowar in Gundlupete taluk and Pulses in Kollegala taluk. Jowar is replaced by Oil Seeds in Chamarajanagar taluk and Ragi is replaced by Maize in Yalanduru taluk during 2020-21 .

Fifth Ranking Crop:- The number of crops cultivated as fifth ranking crops are six during both the study period. Oil Seeds cultivated in two taluks i.e., Chamarajanagar and Yalanduru during 2001-02 and 2020-21 it's replaced by Fruits and Ragi respective taluks. Ragi is grown in Gundlupete taluk and Pulses was grown in Kollegala taluk during 2001-02. The change from 2001-02 to 2020-21 shows that Ragi is replaced by Vegetables and Pulses is replaced by Cotton.

Sixth Ranking Crop:-Chamarajanagar taluk Paddy crops were cultivated during 2001-02 and it's replaced by Vegetables during 2020-21. In Gundlupete taluk during 2001-02 Sugarcane crops was grown and Sugarcane replaced by Maize during 2020-21 Sugarcane and Jowar are growing as sixth ranking crop in two taluks viz. Kollegala and Yalanduru during 2001-02 and 2020-21 it's replaced by Fruits in both the taluks.

Seventh Ranking Crop:-The number of crops cultivated as seventh ranking crops are two during 2001-02, three during 2020-21. Vegetables are cultivated as seventh ranking crop in Chamarajanagar, Gundlupete and Yalanduru taluks during 2001-02, whereas, Cotton was grown as seventh ranking crop in only one taluk i.e., Kollegala taluka. Similarly, Vegetables are replaced by Ragi in Chamarajanagar and Gundlupete taluks and Oil Seeds in Yalanduru taluk. Cotton is replaced by Vegetables in Kollegala taluk during 2020-21.

Eight Ranking Crop:-The change from 2001-02 to 2020-21 shows that Fruits is replaced by Sugarcane in Chamarajanagar taluk, Vegetables is replaced by Sugarcane in Kollegala taluk and Maize is replaced by Jowar in Yalanduru taluk. Fruits were cultivated in both the study periods in Gundlupete taluk.

Ninth Ranking Crop:-Seven crops are identified as a ninth ranking crop in study area. Chamarajanagar taluk Cotton crop were cultivated during 2001-02 and it's replaced by Paddy during 2020-21. In Gundlupete taluk during 2001-02 Maize crop was grown and Maize replaced by Sugarcane during 2020-21.Fruits are growing as ninth ranking crop in two taluks viz. Kollegala and Yalanduru during 2001-02 and 2020-21 and it's replaced by Oil Seeds and Vegetables in respective taluks.

Tenth Ranking Crop:-Chamarajanagar taluk Maize crop were cultivated during 2001-02 and it's replaced by Cotton during 2020-21. In Gundlupete taluk during 2001-02 Paddy crop was grown. Jowar were cultivated in both the study periods in Kollegala taluk .There are no ranking of crop (Cotton) in Yalanduru taluk during both the decade and only one taluk is mentioned no ranking of crops (Paddy) in Gundlupete taluk during the year 2020-21.In all the replacement of crops in different taluks of the study region is due to many factors namely, decrease of area under irrigation, climatic changes from one region to another, soil types of different taluks, rainfall variations from one place to another place, etc. The spread of technological innovation have also a profound impact on the changing rank position of crops in different taluks. The villages which are close to urban centers can also practice the replacement of crops accordingly to demands of urban centers.

Taluk Wise Ranking of Crops 2001-02 in Chamarajanagar District (in percentage)

SI. NO	Ranks	1	2	3	4	5	6	7	8	9	10
	Taluk										
1	Chamarajanagara	SC	PU	R	J	OS	P	V	F	C	M
	%	23.11	20.73	19.56	18.42	6.15	5.65	2.66	2.61	0.89	0.24
2	Gundlupete	PU	J	C	OS	R	SC	V	F	M	P
	%	34.13	22.13	15.16	12.26	6.45	5.81	2.93	0.63	0.39	0.13
3	Kollegala	M	R	P	OS	PU	SC	C	V	F	J
	%	25.30	21.69	17.06	15.79	15.34	2.94	1.26	0.25	0.23	0.15
4	Yalanduru	P	PU	SC	R	OS	J	V	M	F	C
	%	49.94	18.71	15.34	8.44	4.17	2.34	0.73	0.21	0.14	NIL
	NO.OF Crops	4	3	4	3	3	3	2	3	3	4

P = Paddy, R = Ragi, J = Jowar, M = Maize, SC = Sugarcane, PU = Pulses, OS = Oil Seeds, F = Fruits, V = Vegetables, C = Cotton

Taluk Wise Ranking of Crops 2020-21 in Chamarajanagar District (in percentage)

SI. NO	Ranks	1	2	3	4	5	6	7	8	9	10
	Taluk										
1	Chamarajanagar	PU	M	J	OS	F	V	R	SC	P	C
	%	32.06	15.46	12.08	10.89	6.84	6.44	5.36	4.58	3.18	3.10
2	Gundlupete	OS	PU	C	J	V	M	R	F	SC	P
	%	26.92	18.68	15.65	13.36	9.78	8.54	3.47	2.89	0.71	NIL
3	Kollegala	M	R	P	PU	C	F	V	SC	OS	J
	%	42.80	18.66	13.60	9.94	4.35	2.92	2.89	2.41	2.24	0.19
4	Yalanduru	P	PU	SC	M	R	F	OS	J	V	C
	%	35.00	26.18	15.23	13.55	4.27	2.84	1.22	0.93	0.79	NIL
	NO.OF Crops	4	3	4	4	4	3	3	3	4	3

CONCLUSION

In order to attempt an exposition of agricultural land use pattern in Chamarajanagar district has been Considered for studying ranking of crops, crop combination, crop diversification, crop concentration, intensity Of cropping and analyzed for cropping pattern. Five crops have been identified as first ranking crops. These five Crops are, namely, Sugarcane, Pulses, Maize, Paddy and Oil Seeds. Paddy is major crop and it stands as first rank and is found to have largest area occupying in the study region. The application of Raffiullah method shows the realistic picture of crop combination. Three crop combination regions has found in study area. Monoculture is in one taluk and Paddy as monoculture crops. Three taluks and 5 major crops are Found in two crop combinations like, Paddy, Jowar, Maize, Ragi and Pulses both decades. Three crop combinations are majorly found in two taluks and 7 major crops are Sugarcane, Jowar, Maize, Ragi, Pulses, Oil Seeds and Cotton in both the decades. The crop diversification has been computed by applying Gibb's Martin's Index formula. The largest area under cover high crop Diversification and three taluks found in increased crop diversification out of four taluks. The crop concentration of Paddy, Ragi, Jowar, Sugarcane and Maize was same with both the decade. Pulses, Oil Seeds, Fruits and Cotton crops were increased crop concentration in second decade. High intensity of cropping was found during second decade. Same taluks has both increases and decrease Intensity of cropping over the period of years as the irrigation facilities was less during summer.

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