

# A Geographical Study of Cropping Intensity in Chamarajanagar District, Karnataka

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## Abstract:

Agriculture is the lifeblood of the Indian economy. Agriculture production in India has increased dramatically, albeit with certain adverse effects. Land for agriculture is limited but the population is increasing rapidly, necessitating more food. In order to feed the world's rising population, agricultural intensification must be increased as cropping intensity is an important indication of agricultural production and sustainability, and variations in cropping intensity can have large economic, social and environmental consequences. This study examines the Spatio-temporal patterns of cropping intensity over the last decade and identifies the mechanisms causing these changes using data from government records, Statistical Abstract and field observations. Cropping intensity has grown in some areas of Chamarajanagar district while dropping in others, according to the findings. The research also demonstrates the impact of factors such as irrigation access and government regulations on cropping intensity. The study has significant significance for Chamarajanagar district agricultural development and policy, and also for other regions facing similar challenges.

**Keywords:** Cropping Pattern, Intensity, Chamarajanagar, & Karnataka.

## Introduction

Cropping intensity plays an unreplacible role in the agricultural growth of any region. Higher the cropping intensity more the usages of land for agricultural purpose. The scope for expanding net sown area having already reached a saturation level and potential for raising for yield nearly exhausted in many crops and regions, stepping up of incidence multiple cropping will be necessary to augment agricultural production. The agricultural growth that India has experienced since independence is an outcome of efforts to ensure availability and use of high-quality seeds of high yielding varieties, fertilizers, irrigation, pesticides, farm machinery and equipment; and agricultural credit. The major sources of agricultural growth during this period were the spread of modern crop. Varieties, intensification of input use and investments leading to expansion in the irrigated area. The contribution of increased land area under agricultural production has declined over time and increases in production in the past two decades have been almost entirely due to increased productivity. Cropping intensity on a farm is found by dividing the gross area sown by

the net area sown in any crop year, and the multiplying is by 100. This measure gives us an index of the extent of multiple cropping taking places on a farm. Intensity of irrigation is defined as the percentage of net irrigated area to the net sown area.

## Review of Literature: -

Valipour (2015), He studied what is The Tendency of Cultivate Plants for Designing Cropping Intensity in Irrigated Area. The study shows indicate that attention to only commercial goals should be reduced, trial and error policies should be avoided and exert comments be applied to the irrigation systems for any crop to achieve sustainable agriculture in future. To identify major and effective variations on land for cropping intensity for investment plans. Saka (2011), He has studied the Determinants of Land Use Intensity among Food Crop Farmers in South Western Nigeria. The study examines the structure of land use intensification in food crop production in towards determining its drivers and concordance with the condition for sustainable intensification.

Researcher concludes that evidence of increasing pressure on land that is characterized by increased frequency of cultivation of farmland high cropping intensity and prevalence of high land use intensity in food crop production in the study area however the condition under which this took place fell short of what was advanced for sustainable growth through intensification. Heller, Rhemtulla, Lele, Kalacska, Badiger, Sengupta and Ramankutty (2013), They have examined mapping crop types, irrigated areas, and cropping intensities in heterogeneous landscapes of southern India using multi-temporal medium resolution imagery: implications for assessing water use in agriculture. The study shows that higher estimates of total and irrigated cropland than the previous single- imagery studies and census data revealing the high uncertainty in crop estimates in the region.

**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.

**Intensity of Cropping:** Cropping Intensity Index refers to the changes in the cropping intensity of crop compared to a given base year. Cropping intensity is the number of times a crop is planted per year in a given agricultural area. It is the ratio of effective crop area harvested to the physical area. Intensity of cropping, extent of maturity and increasing of the existing cultivated area are problems of paramount importance in the

agricultural economy of a region. These need a serious thought by the planners.

### Intensity of Cropping Method

The following formula is used to delineate the intensity of cropping in the district.

$$\text{Intensity of Cropping} = \frac{\text{Gross Cropped Area}}{\text{Net Sown Area}} \times 100$$

Where:

**Gross cropped area** = Net area sown plus area sown more than once in a year (Double cropped area),

**Net sown area** = area sown only once in a year.

Present study is based on secondary data, considering two time periods (2001-02 and 2020-21). Intensity of cropping techniques is categorized in to 3 ranges; high, medium and low.

### Change in Intensity of Cropping

**Increased Intensity of Cropping:** Over a period of time there are minimal changes in crop intensity. As per our observation during 2001-02 and 2020-21 Gundlupete and Kollegala taluks has increase in the crop intensity.

**Decreased Intensity of Cropping:** Chamarajanagar and Yalanduru taluks have decreased its intensity during 2001-02 and 2020-21. The decreased intensity of cropping index value noticed -9.12.

**Table : Taluk Wise Intensity of Cropping for 2001-02 and 2020-21 in Chamarajanagar District**

Sl. NO	Taluk	2001-02	2020-21	Change + or -	Increase (or) Decrease
1	Chamarajanagar	123.54	114.55	-8.99	Decrease
2	Gundlupete	120.66	121.96	1.30	Increase
3	Kollegala	116.84	119.00	2.16	Increase
4	Yalanduru	120.39	111.26	-9.12	Decrease
Mean		68.99	127.12		
Standard Deviation		17.08	8.95		

*Source: Chamarajanagar District at a Glance - 2001-02 and 2020-21.*

**Table : Result on Intensity of Cropping**

Intensity of Regions	Range of Intensity	2001-02		2020-21	
		No. of Taluks	Name of the Taluks	No. of Taluks	Name of the Taluks
Low	Less than - 60	1	YAL	0	--
Medium	Between - 61 -120	3	CHA, GUN, KOL	1	KOL
High	More than - 121	0	--	3	CHA, GUN, YAL

CHA = Chamarajanagar, GUN = Gundlupete, KOL = Kollegala, YAL = Yalanduru

### Taluk Level Cropping Intensity

**Low Cropping Intensity:** Yalanduru taluk has remained low cropping intensity during first decade. It is because of less rainfall and high topography and poor soil condition. As a result each crop occupying equal proportion of crop land leads to higher diversification

**Medium Cropping Intensity:** Chamarajanagar, Gundlupete and Kollegala taluks was medium cropping intensity in first decade, were as Kollegala taluk continued to be the same in second decade of the study area. This trend is because of the improvement in the irrigational facilities, which made taluks of low and medium intensity move to high intensity categories of cropping.

**High Cropping Intensity:** Yalanduru taluk is high cropping intensity in second decade but it was low cropping intensity in first decade. Chamarajanagar and Gundlupete taluks was high cropping intensity in second decade but medium cropping intensity in first decade. The high intensity was largely due to better irrigation facilities, adoption of modern

facilities and double cropping system in these taluks.

### 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 Rafiullah's 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.

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