



Principle Crop Concentration In Cauvery Basin Region Of Tamil Nadu

KEYWORDS

Words: cropping pattern, crop concentration, principle crops

R M YUVARAJ M.Sc

73 4th Street, New Bethania Nagar, Valasaravakkam, Chennai – 600087. Tamil Nadu

ABSTRACT

In this paper the cropping pattern of the principle crops in the Cauvery basin region of Tamil Nadu are formulated. Principle crops of the Tamil Nadu are Paddy, Pulses, Sugar cane, Cotton, Ground nut, Cholam and Cumbu account for about 73% of gross cropped area in the state. Bhatia's method is used for calculating the concentration of crops, final conclusions is made based on two maps constructed using GIS for the period of 1986-1990 and 2006-2011. The spatial variations in the degree of concentration of crop are found to be the result of the study because of different interaction such as physiographic, climatic, hydrological, socio-economic and technological factors in organizational effect of the study region.

INTRODUCTION

Tamil Nadu has historically been an agricultural state and is a leading producer of agricultural products in India. In 2008, Tamil Nadu was India's fifth biggest producer of Rice. The total cultivated area in the State was 5.60 million hectares in 2009–10. The term crop concentration is nothing but the variation of density of crops in a particular region at a particular time. The habitation (high, medium and low) is determined largely by the terrain and climate including temperature, humidity, transport facilities and demand of the crop.

The cropping patterns of a region are closely influenced by the geo-climatic, socio-economic, historical and political factors (Hussain, M. 1996). Relating the crop density in each of the component areal units of the region to the corresponding density for the entire region. It makes it possible to measure the regional concentration of crops objectively and to differentiate areas that have some significance with regard to crop distributions within the region (S.S Bhatia, 1965). The study of crop concentration is helpful in many ways in deriving relevant conclusions about crop distribution. Higher the crop concentration index, higher is the level of interest in the production of that crop. It helps in taking important decisions regarding marketing, storage, and trading of the crop produce.

Rice is the dominant crop in Tamil Nadu. Groundnut, Sugarcane and cotton are important commercial crops. Jowar, Bajra and Pulses are some important food grain crops. These seven crops account for about 73% of gross cropped area in the state and these seven crops are called principle crops, while 42 other crops are each cultivated in small areas. They include minor millets, other oil seeds, turmeric, vegetables, fruits, coconut and other minor crops.

OBJECTIVE

- To analyze the concentration of principle crops in the study area for better study and planning.
- To identify the areas of crop concentration of the study area on the basis of Bhatia's method.

DATA BASE

The data for the analysis consists of area under principle

crops grown at seventeen Cauvery basin districts of Tamil Nadu during 1985-1990 and 2006-2011. Seven principle crops grown in study area have been selected. The details of the Cauvery basin districts and the crops selected for the study are given in table 1.1 For the percent study the data has been collected from secondary source.

Table 1.1 Cauvery basin districts and Principle crops

DISTRICTS	PRINCIPLE CROPS
Krishnagiri, Dharmapuri, Salem, Erode, Nilgiri, Coimbatore, Thiruppur, Dindigul, Karur, Thiruchirapalli, Perambalur, Ariyalur, Pudukkottai, Thanjavur, Thiruvarur, Nagapattinam, Namakkal	Paddy, Pulses, Sugar cane, Ground nut, Cotton, Cholam, Cumbu

METHODOLOGY

For finding the district wise crop concentration, Bhatia's method of Location quotient has been taken into consideration

$$\text{Index for determining consideration of crop 'X' = } \frac{\frac{\text{area of crop 'X' in a component areal unit}}{\text{area of all crops in the component areal unit}}}{\frac{\text{area of crop 'X' in entire region}}{\text{area of all crops in the entire region}}}$$

The maps prepared from such ratios do give an idea of the variations in the density of distribution being investigated. Two maps for concentration are prepared for each crop one in the period between 1985-1990 and second in the period 2006-2011.

PADDY

There is no change in the concentration of paddy in the Cauvery basin areas between 1985-1990 and 2006-2011. High concentration of Paddy crop found in the districts of Thanjavur, Thiruvarur, Nagapattinam, Pudukkottai and Nilgiri. Here Thanjavur, Thiruvarur, Nagapattinam and Pudukkottai are come under the delta region of the Cauvery having a fertile soil support for rice cultivation. This region is also called rice bowl of south India. Medium concentration of Paddy crop found in the districts of Erode, Thiruchira-

palli, Perambalur and Ariyalur. Low concentration of Paddy crop found in the districts of Krishnagiri, Dharmapuri, Salem, Namakkal, Karur, Dindigul, Thiruppur and Coimbatore. It clearly shows in the Fig No. 1.1, 1.2 and Table 1.2, 1.3

PULSES

The Fig No. 1.3, 1.4 and Table 1.2, 1.3 signify that High to medium concentration are seen in the Dharmapuri and Salem districts. Change of medium to low concentration is seen in the districts of erode, Namakkal, Thiruchirapalli, Pudukkottai and Nilgiri. There is no change in the districts of Krishnagiri, Thiruppur, Thanjavur and Nagapattinam where high concentration of pluses prevails during 1985-1990 and 2006-2011. No change in the districts Coimbatore, Dindigul and Thanjavur where medium level of concentration of pluses during the period of 1985-1990 and 2006-2011. There is no change in the districts of Perambalur, Ariyalur and Karur where low level of concentration of pluses is seen.

SUGAR CANE

It clearly indicates in the Fig No. 1.5, 1.6 and Table 1.2, 1.3. No changes recorded in the districts of Dharmapuri, Erode, Krishnagiri, Nilgiri, Dindigul, Thiruchirapalli, Pudukkottai, Karur, Thiruvarur and Nagapattinam. Whereas, Thiruppur, Perambalur and Ariyalur districts have been turned into medium concentration from high concentration region. Thanjavur and Coimbatore districts changed from medium concentration to low concentration. Low to medium recorded in the Salem district and medium to high recorded in the Namakkal district during 1985-1990 to 2006-2011.

GROUND NUT

During the period between 1985-1990 to 2006-2011 no changes has been recorded in the districts of Krishnagiri, Dharmapuri, Nilgiri, Namakkal, Coimbatore, Thiruppur, Dindigul, Perambalur, Ariyalur, Thanjavur, Thiruvarur and Nagapattinam. Medium to high recorded in the districts of Erode and Salem. High to medium seen in the Pudukkottai district. Low to medium recorded in the districts of Karur and Thiruchirapalli. It clearly shows in the Fig No. 1.7, 1.8 and Table 1.2, 1.3

COTTON

No changes in the concentration in the Perambalur, Nilgiri, Krishnagiri, Ariyalur, Namakkal, Karur, Pudukkottai, Thanjavur, Thiruvarur and Nagapattinam. High to medium level of cotton crop concentration recorded in the districts of Dharmapuri and Salem during 1985-1990 to 2006-2011. Medium to low level of cotton crop concentration experienced Erode, Thiruppur and Dindigul. High to low level changes recorded in Coimbatore district. Low to medium level changes in the Thiruchirapalli. It clearly shows in the Fig No. 1.9, 1.10 and Table 1.2, 1.3

CHOLAM

It is clear from the Fig No. 1.11, 1.12 and Table 1.2, 1.3 no change in the Cholam crop concentration recorded in the Nilgiri, Dharmapuri, Salem, Namakkal, Thiruchirapalli, Perambalur, Ariyalur, Pudukkottai, Thanjavur, Thiruvarur, Nagapattinam, Coimbatore, Dindigul and Karur. Low to medium level change in the Cholam concentration in the Krishnagiri district. Medium to high level change in the Cholam crop concentration in the Thiruppur district.

CUMBU

Fig No. 1.13, 1.14 and Table 1.2, 1.3 exhibits that no

changes in the Cumbu crop concentration noticed in the districts of Nilgiri, Coimbatore, Thiruppur, Namakkal, Pudukkottai, Thanjavur, Thiruvarur, Nagapattinam, Salem, Ariyalur, Thiruchirapalli and Karur. Medium to high level change in the Dindigul district. Medium to low level change to the Erode and Perambalur whereas, low to medium level change in the Krishnagiri and Ariyalur district recorded during the period 1985-1990 to 2006-2011.

CONCLUSION

It may be concluded from the results presented in the study that there exists wide spatio-temporal disparity in the concentration of crops in the Cauvery basin area of Tamil Nadu. The technique for measuring concentration presented above seems to be a useful tool in the analysis of crop patterns of study area and appears to be of wider application in analyzing other agricultural distributions as well. The spatial variations in the degree of concentration of crop are found to be the result due to different interaction such as physiographic, climatic, hydrological, socio-economic and technological factors in organizational effect of the study region. The total cropped area and gross production of principal crops depend on the quantum and spread of precipitation and availability of ground water. Paddy, a staple food crop, is grown extensively in the districts of Thanjavur, Thiruvarur, Pudukkottai and Nagapattinam.

SL NO	DISTRICT	PADDY	TOTAL PULSES	SUGAR CANE	COTTON	GROUND NUT	CHOLAM	CUMBU
		Concentration of Crops in 1985-1990						
1	Salem	0.4	1.6	0.7	2.3	1.3	0.9	1.5
2	Namakkal	0.3	0.6	1.5	0.6	2.6	1.2	0.4
3	Dharmapuri	0.5	1.4	2.1	2.0	1.0	1.2	0.7
4	Krishnagiri	0.4	2.3	0.3	0.5	1.6	0.5	0.4
5	Coimbatore	0.1	0.8	1.0	3.4	1.0	2.5	0.2
6	Thiruppur	0.4	1.3	2.0	1.0	1.1	1.6	0.2
7	Erode	0.7	0.6	1.7	1.0	1.4	1.3	1.3
8	Thiruchirapalli	0.9	0.5	0.5	0.5	0.6	1.7	2.8
9	Karur	0.3	0.4	0.9	0.0	0.5	2.3	5.7
10	Perambalur	0.9	0.2	2.4	2.9	1.2	1.1	1.5
11	Ariyalur	0.9	0.2	1.9	0.7	1.7	0.9	2.3
12	Pudukkottai	1.7	0.6	0.3	0.2	1.6	0.1	0.3
13	Thanjavur	2.3	0.5	1.3	0.2	0.6	0.0	0.0
14	Thiruvarur	2.1	1.5	0.2	0.3	0.2	0.0	0
15	Nagapattinam	2.0	1.6	0.5	0.2	0.2	0.0	0.0
16	Dindigul	0.4	0.9	0.7	1.4	0.9	2.1	1.3
17	The Nilgiris	2.6	0.5	0.2	0.0	0.2	0.1	0.1

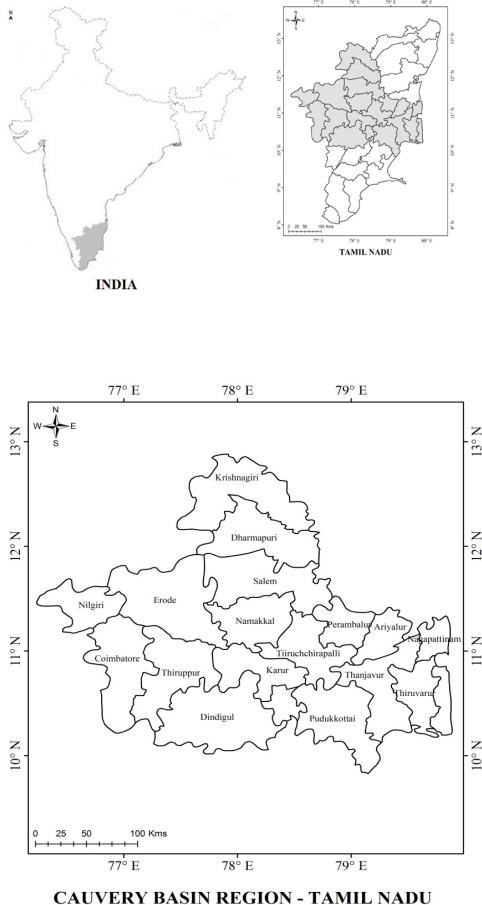
Table 1.2 Concentrations of Crops in 1985-1995

District wise distribution of Principle crops concentration in Cauvery basin region

SL NO	DISTRICT	Concentration of Crops in 2006-2011						
		PADDY	TOTAL PULSE	SUGAR CANE	COTTON	GROUND NUT	CHOLAM	CUMBU
1	Salem	0.5	0.9	1.2	3.7	1.8	1.2	1.7
2	Namakkal	0.3	0.3	2.5	0.9	3.2	1.5	0.4
3	Dharmapuri	0.5	1.0	2.3	2.0	1.1	1.4	1.6
4	Krishnagiri	0.5	1.9	0.4	0.6	2.1	0.7	1.1
5	Coimbatore	0.1	1.1	0.6	0.6	1.0	4.9	0.5
6	Thiruppur	0.4	1.6	1.1	0.2	1.0	2.8	0.3
7	Erode	0.7	0.5	3.9	0.5	1.9	0.0	0.4
8	Tiruchirapalli	1.1	0.4	0.5	2.1	0.8	1.7	2.4
9	Karur	0.5	0.5	1.3	0.0	0.9	3.5	7.3
10	Perambalur	0.7	0.1	1.6	8.0	1.2	0.8	0.9
11	Ariyalur	1.0	0.1	1.5	2.2	2.0	0.8	1.7
12	Pudukkottai	1.6	0.1	0.8	0.0	1.4	0.0	0.0
13	Thanjavur	1.7	0.7	0.7	0.1	0.4	0.0	0.0
14	Thiruvavur	1.4	1.7	0.1	0.1	0.1	0.0	0
15	Nagapatinam	1.4	1.8	0.2	0.1	0.1	0.0	0
16	Dindigul	0.4	1.3	0.7	0.4	1.1	2.9	4.5
17	The Nilgiris	2.1	0.1	0.1	0.2	0.0	0	0

Table 1.3 Concentrations of Crops in 2006-2011

LOCATION MAP OF CAUVERY BASIN REGION – TAMIL NADU



CAUVERY BASIN REGION - TAMIL NADU

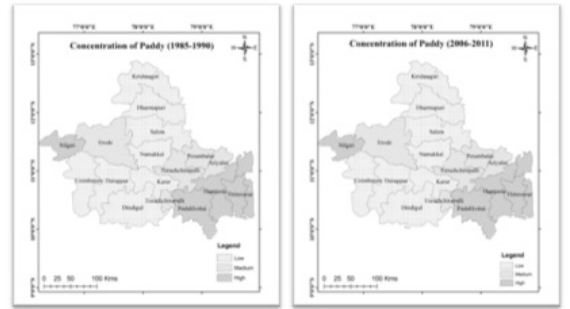


Fig No. 1.1

Fig No. 1.2

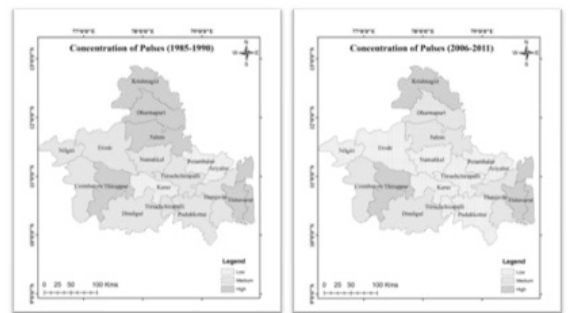


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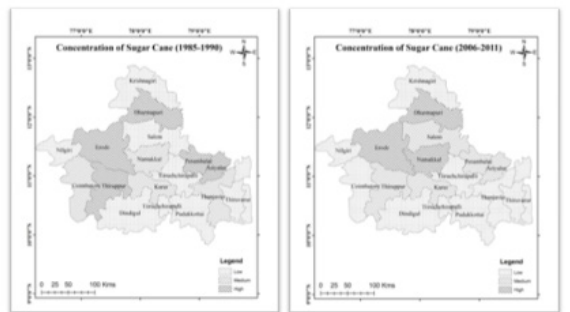


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Fig No. 1.6

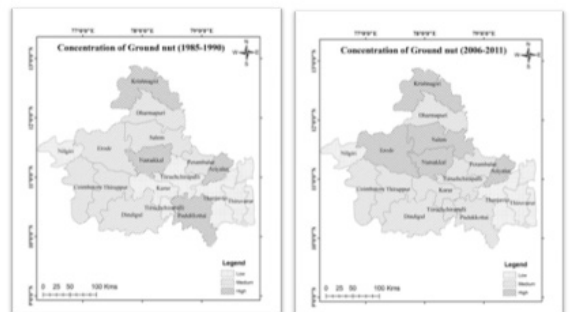


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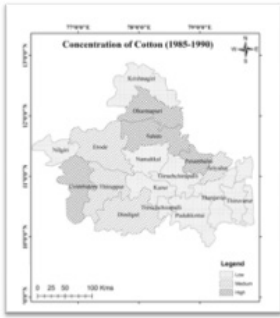


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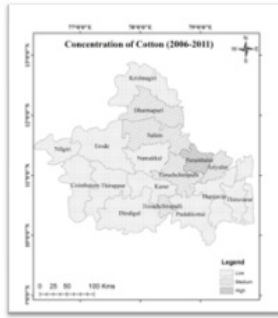


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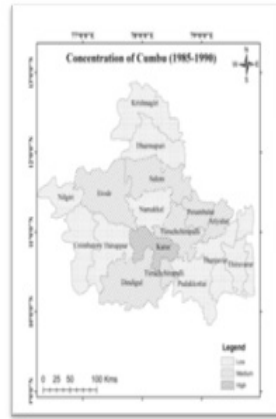


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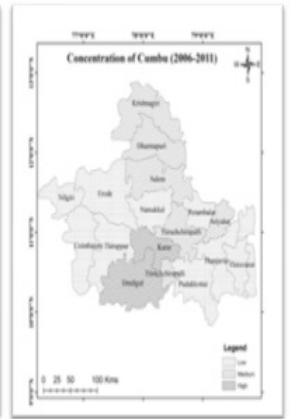


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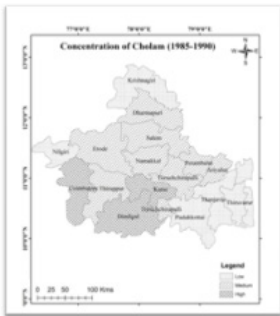


Fig No. 1.11



Fig No. 1.12

REFERENCE

1. Bhatia Shyam S., (January 1965). Patterns of Crop Concentration and Diversification in India. *Economic Geography*. 41(1), 39-65. | 2. Gomatee, Najmul I. H, (August 2012). Pattern Of crop Concentration and Diversification in Upper Ganga Yamuna Doab, *International Journal Of Innovative research and Development*, 1(5), 481-496. | 3. Rahman S. (August 2009). Whether crop diversification is a desired strategy for agricultural growth in Bangladesh, *Journal Science Direct Food Policy*, 34(4), 340-349. | 4. Alagh M. and Y.K. Alagh, (August 2003). Trends in Crop Diversification: Need for a Policy Shift. *Agricultural Situation in India*. LX(5). | 5. Season and Crop report of Tamil Nadu (2009-2010) Dept. of Economics and Statistics. | 6. Moran W. B. and Mounto R. J., (1981), *The Relationship between Agricultural Activities and Physical Environment and Pattern of distribution*". *Agricultural Geography*. | 7. Raj K. N, Sen and C. H. H. Rao, 1988, *Studies on Indian Agriculture: Dharm Narala, Oxford University Press, New Delhi*.