GEOGRAPHICAL ANALYSIS

RESEARCH ARTICLE

Changes in Cropping Pattern of Karnataka state: A Geographical Analysis

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OPEN ACCESS

Received: 12.02.2019
Accepted: 21.05.2019
Published: 28.06.2019

Citation: Satnami D, Surendra P. (2019). Changes in Cropping Pattern of Karnataka state: A Geographical Analysis . Geographical Analysis. 8(1): 43-49. https://doi.org/10.53989/bu.ga.v8i1.10

Funding: None

Competing Interests: None

Published By Bangalore University, Bengaluru, Karnataka

ISSN
Print: 2319-5371
Electronic: XXXX-XXXX

Abstract

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. The cropping pattern explain from agriculture crops and changes are analyzed. Two sets of data (2003-2004 and 2017-2018) were taken in this study. Secondary data's are collected and analyzed by cropping pattern.

Keywords: Cropping Pattern; Paddy; Ragi; Jowar; Bajra; Maize; Wheat; Pulses; Sugar Cane and Cotton

Introduction

Agriculture is a primary activity, which is influenced by socio-physical and politico-economic factors. These factors affect the intensity of land use, farming system and choice of cropping. The rise in the educational level of the people with the development in education facilities attracts the people towards tertiary sector. The growing awareness among the farmers has leaded them to attend camps regarding agriculture – horticulture being held in the area as well as in other part of the state. The Northern part of the state was dry area and southern part of the state is well irrigated. The acceptance of technical knowledge has changed the cropping pattern in the state. Likewise, various changes have taken place within a span of 15 years, which needs to be studied applying geographic knowledge along with emerging tools and techniques. In the present study an attempt has been made to visualize the changes in the cropping pattern will focus on many facts and understand various aspects in Karnataka state.

Objectives

The aims of the present study to investigate the change in Cropping Pattern of Karnataka.

Study Area

The Indian State of Karnataka is located 11 30′ North and 18 30′ North latitudes and 74 East and 78 30′ East longitude. In the western part of the Deccan Peninsular region of India. The State is bounded by Maharashtra and Goa States in the north and northwest; by the Arabian Sea in the west; by Kerala and Tamil Nadu States in the South and by the States of Andhra Pradesh and Telangana in the East. Karnataka extends to about 750 km from north to south and about 400 km from east to west. It can be further divided into Four Physiographic regions- the Northern Karnataka plateau, Central Karnataka Plateau, Southern Karnataka Plateau and the Coastal Karnataka plateau. There are Chains of mountains, the highest being the Mullayanagiri (1929 m). There are varied types of soils in Karnataka. Black soils are found in northern Karnataka whereas red and red loamy soils are prominent in southern Karnataka. Laterite soils are found in main land and coastal areas of the state. The forest ecosystem of Karnataka is unique and highly diverse. Vegetation types include tropical evergreen, semi- evergreen, moist deciduous, dry deciduous, thorny scrubs, shoals and coastal mangroves. There are many rivers flowing through the state. The most famous among them are the Krishna, Cauvery, Godavari, Pennar and Palar.

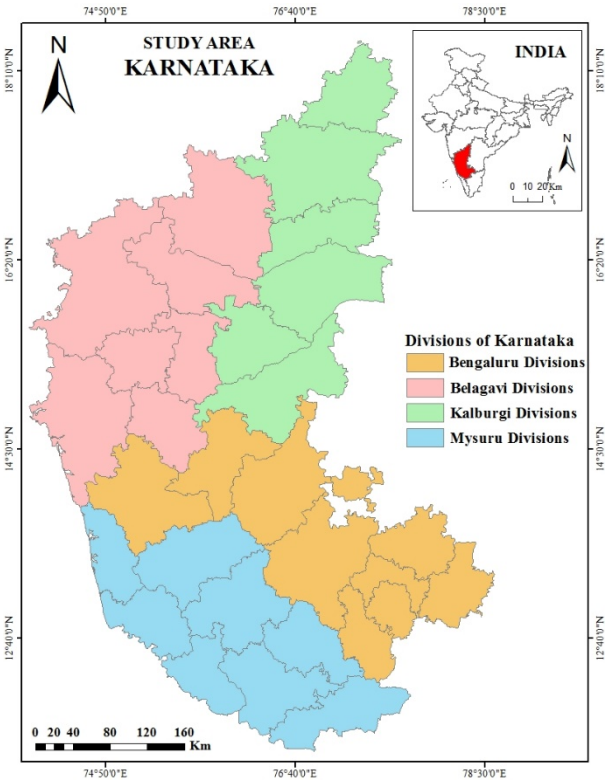

Fig. 1. LocationMap of Karnataka

Methodology

The present study based on the secondary sources data. Agriculture cropped area data have been collected form Karnataka at a Glance. The whole Karnataka state is divided into following four administrative divisions, covering all 30 districts. Cropping pattern was assessed for the selected crops include Paddy, Ragi, Jowar, Bajra, Maize, Wheat, Pulses, Sugar Cane and Cotton for the periods 2003-2004 and 2017-2018. This assessment of cropping pattern includes temporal changes of individual crop cultivation for area based on the divisional areas of the Karnataka state.

Table 1. Administrative Divisions of Karnataka State

SN	Bengaluru Divisions	Mysuru Divisions	Kalburgi Divisions	Belagavi Divisions
1	Bengaluru (u)	Udupi	Bellary	Belagavi
2	Bengaluru ®	Chikkama-galuru	Kalburgi	Bagalkot
3	Chitradurga	Mandya	Bidar	Vijayapura
4	Chikkabal-lapura	Hassan	Raichur	Gadag
5	Davanagere	Dakshin Kannada	Koppal	Dharwad
6	Kolara	Kodagu	Yadgir	Uttara Kannada
7	Ramanagara	Mysuru		Haveri
8	Shivamogga	Chamara-janagara		
9	Tumakuru			

Results and Discussions

Change in Cropping Pattern

Cropping pattern refers to proportion of area under different crops at different points of time. There are various crop statistics are used to denote cropping pattern which include temporal changes of crop cultivation area, crop combination and crop diversification. The study of cropping pattern constitutes an important aspect of agricultural geography as it provides a good basis for agricultural regionalization. The crops are generally grown in combinations and it is very rare to say that a particular crop occupies a position of total area at a given time. The physical factors may determine the shape of the areas of crops, while the socioeconomic relationships determine their extent.

The Table 2 and Figure 2 shows the Cropping Pattern of major selected crops that are grown in the state of Karnataka in the year 2003-04 and 2017-18. The major crops are - Paddy, Ragi, Jowar, Bajra, Maize, Wheat, Pulses, Sugarcane, Cotton. The entire state covered a total geographical area of 7745484

Table 2. Cropping Pattern (selected crops) 2003-2004 and 2017-2018 in Karnataka

Crops	2003-2004		2017-2018		Change (%)
	Area (Hectares)	Area (%)	Area (Hectares)	Area (%)	
Paddy	1154783	14.9	883647	10.7	-4.2
Ragi	767148	9.9	756194	9.2	-0.7
Jowar	1786237	23.1	1043275	12.6	-10.4
Bajra	304581	3.9	217876	2.6	-1.3
Maize	649544	8.4	1304575	15.8	7.4
Wheat	246855	3.2	193242	2.3	-0.8
Pulses	2060601	26.6	2838650	34.4	7.8
Sugar Cane	382719	4.9	531305	6.4	1.5
Cotton	393016	5.1	485331	5.9	0.8
Total Cropped Area	**7745484**	**40.7**	**8254095**	**43.3**	**2.7**

Source: Karnataka at a Glance -2003-04 and 2017-18.

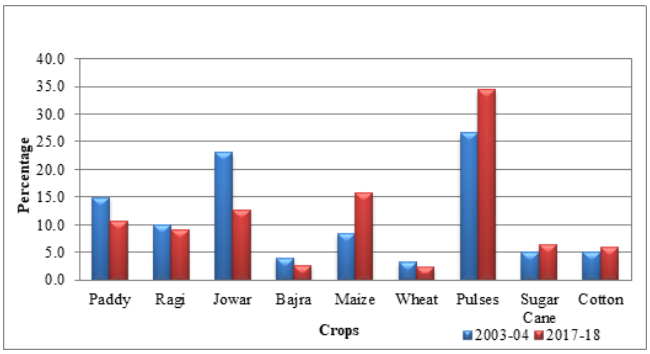

Fig. 2. Cropping Pattern (selected crops) 2003-2004 and 2017-2018 in Karnataka

hectares i.e. 40.7% in 2003-04 which increased to 8254095 hectares i.e. 43.3% in 2017-18 accompanied by a total change of 2.7%. The highest positive change is seen in Pulses i.e. 7.8% (increased from 26.6% in 2003-04 to 34.4% in 2017-18) followed by Maize i.e. 7.4% (increased from 8.4% in 2003-04 to 15.8% in 2017-18), Sugarcane i.e. 1.5% (increased from 4.9% in 2003-04 to 6.4% in 2017-18) and Cotton i.e. 0.8% (increased from 5.1% in 2003-04 to 5.9% in 2017-18). The reason behind this increment is that these crops don't require high amount of water and can be cultivated in any land. There is a severe negative change seen in the cropping pattern of the selected crops in the state. Among the crops, Jowar undergoes the highest change i.e. -10.4% (decreased from 23.1% in 2003-04 to 12.6% in 2017-18) followed by Paddy i.e. -4.2% (decreased from 14.9% in 2003-04 to 10.7% in 2017-18), Bajra i.e. -1.3% (decreased from 3.9% in 2003-04 to 2.6% in 2017-18), Wheat i.e. -0.8% (decreased from 3.2% in 2003-04 to 2.3% in 2017-18) and Ragi i.e. -0.7% (decreased from 9.9% in 2003-04 to 9.2% in 2017-18). The reason behind this decrement is due to lack of irrigation facilities.

Paddy

Table 3. Temporal Changes of Paddy Cultivation 2003-2004 and 2017-2018 in Karnataka

S No	Divisions	2003-2004		2017-2018		Change (%)
		Area (Hectares)	Area (%)	Area (Hectares)	Area (%)	
1	**Bengaluru**	256158	20.0	167133	13.9	-6.1
2	**Belagavi**	249578	9.1	178816	5.4	-3.7
3	**Kalburgi**	259379	10.5	279756	11.1	0.6
4	**Mysuru**	389668	31.7	257942	21.6	-10.1
Karnataka		**1154783**	**14.9**	**883647**	**10.7**	**-4.2**

Source: Karnataka at a Glance -2003-04 and 2017-18.

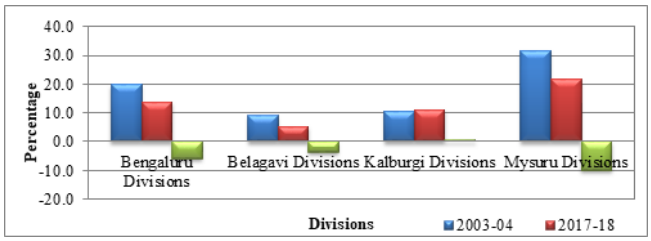

Fig. 3. Temporal Changes of Paddy Cultivation 2003-2004and 2017-2018 in Karnataka

The Table 3 and Figure 3 shows the Temporal Changes of Paddy cultivation in the year 2003-04 and 2017-18. The state is divided into 4 divisions - Bengaluru, Belagavi, Kalburgi and Mysuru divisions. The entire state covered a total geographical area of 1154783 hectares i.e. 14.9% in 2003-04 which decreased to 883647 hectares i.e. 10.7% in 2017-18 accompanied by a total change of -4.2%. A positive change is seen in the Kalburgi divisions i.e. 0.6% (increased from 10.5% in 2003-04 to 11.1% in 2017-18). A severe negative change is seen in the Mysuru divisions i.e. -10.1% (decreased from 31.7% in 2003-04 to 21.6% in 2017-18) followed by Bengaluru divisions i.e. -6.1% (decreased from 20.0% in 2003-04 to 13.9% in 2017-18) and Belagavi divisions i.e. -3.7% (decreased from 9.1% in 2003-04 to 5.4% in 2017-18). The reason behind this decrement is that paddy requires a high amount of water or irrigational facility, urbanization and the agricultural lands are converted into settlement areas. Because of less rainfall, the Krishna Raja Sagara Dam is not able to supply the required amount of water for irrigation purpose which hampers the cultivation of paddy. Again, a major cause is the Kaveri water dispute between Karnataka and Tamil Nadu, plays a major role in the decrement of paddy cultivation.

Ragi

Table 4. Temporal Changes of Ragi Cultivation 2003-2004 and 2017-2018 in Karnataka

Sl. No	Divisions	2003-2004		2017-2018		Change (%)
		Area (Hectares)	Area (%)	Area (Hectares)	Area (%)	
1	**Bengaluru**	435970	34.0	430092	35.8	1.8
2	**Belagavi**	3934	0.1	625	0.0	-0.1
3	**Kalburgi**	6349	0.3	18805	0.7	0.4
4	**Mysuru**	320895	26.1	306672	25.7	-0.4
Karnataka		**767148**	**9.9**	**756194**	**9.2**	**-0.7**

Source: Karnataka at a Glance - 2003-04 and 2017-18.

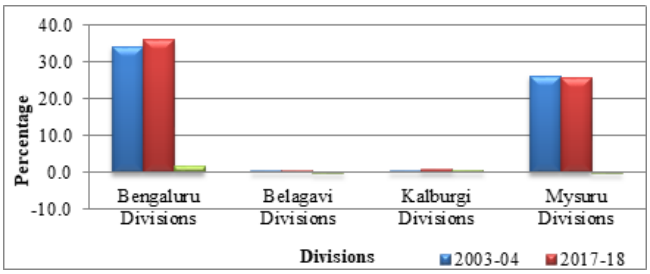

Fig. 4. TemporalChanges of Ragi Cultivation 2003-2004 and 2017-2018 in Karnataka

The Table 4 and Figure 4 shows the Temporal Changes of Ragi cultivation in the year 2003-04 and 2017-18. The state is divided into 4 divisions - Bengaluru, Belagavi, Kalburgi and Mysuru divisions. The entire state covered a total geographical area of 767148 hectares i.e. 9.9% in 2003-04 which decreased to 756194 hectares i.e. 9.2% in 2017-18 accompanied by a total change of -0.7%. The highest change is seen in the Bengaluru divisions i.e. 1.8% (increased from 34.0% in 2003-04 to 35.8% in 2017-18) followed by Kalburgi divisions i.e. 0.4% (increased from 0.3% in 2003-04 to 0.7% in 2017-18).The reason behind increment is that it can be cultivated in drier areas and also in water availability areas. A negative change is seen in Mysuru divisions i.e. -0.4% (decreased from 26.1% in 2003-04 to 25.7% in 2017-18) and Belagavi divisions i.e. -0.1% (decreased from 0.1% in 2003-04 to 0.0% in 2017-18).

Jowar

The Table 5 and Figure 5 shows the Temporal Changes of Jowar cultivation in the year 2003-04 and 2017-18. The state is divided into 4 divisions - Bengaluru, Belagavi, Kalburgi and Mysuru divisions. The entire state covered a total geographical area of 1786237 hectares i.e. 23.1% in 2003-04 which decreased to 1043275 hectares i.e. 12.6% in 2017-18 accompanied by a total change of -10.5%. There are severe negative changes in the divisions of the state. The highest change is seen in the Belagavi divisions i.e. -16.4% (decreased from 33.6% in 2003-04 to 17.2% in 2017-18) followed by Kalburgi divisions i.e. -13.2% (decreased from 29.3% in 2003-04 to 16.1% in 2017-18), Bengaluru divisions i.e. -4.8% (decreased from 6.4% in 2003-04 to 1.6% in 2017-18) and the least change is seen in the Mysuru divisions i.e. -0.5% (decreased from 4.2% in 2003-04 to 3.7% in 2017-18). Jowar cultivation requires good water logging areas but because of growing urbanization, lack of good irrigation facility, conversion of agriculture lands into settlements, the cultivation is hampered which in return shows negative results.

Table 5. Temporal Changes of Jowar Cultivation 2003-2004 and 2017-2018 in Karnataka

S No	Divisions	2003-2004		2017-2018		Change (%)
		Area (Hectares)	Area (%)	Area (Hectares)	Area (%)	
1	**Bengaluru**	82680	6.4	19092	1.6	-4.8
2	**Belagavi**	926437	33.6	571910	17.2	-16.4
3	**Kalburgi**	725686	29.3	408066	16.1	-13.2
4	**Mysuru**	51434	4.2	44207	3.7	-0.5
Karnataka		**1786237**	**23.1**	**1043275**	**12.6**	**-10.5**

Source: Karnataka at a Glance - 2003-04 and 2017-18.

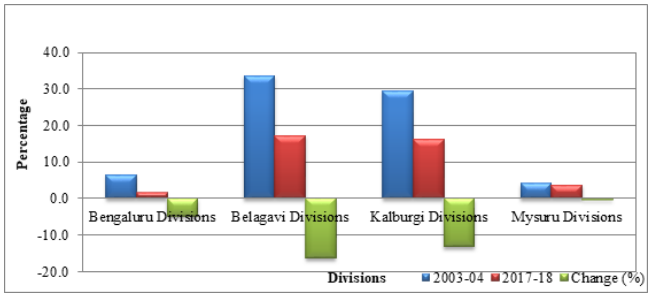

Fig. 5. Temporal Changes of Jowar Cultivation 2003-2004and 2017-2018 in Karnataka

Bajra

The Table 6 and Figure 6 shows the Temporal Changes of Bajra cultivation in the year 2003-04 and 2017-18. The state is divided into 4 divisions - Bengaluru, Belagavi, Kalburgi and Mysuru divisions. The entire state covered a total geographical area of 304581 hectares i.e. 3.9% in 2003-04 which reduced to 217876 hectares i.e. 2.6% in 2017-18 accompanied by a total change of -1.3%. A positive change is seen in the Mysuru divisions i.e. 0.1% (increased from 0.0% in 2003-04 to 0.1% in 2017-18). There are negative changes seen in Belagavi divisions i.e. -2.0% (decreased from 3.7% in 2003-04 to 1.7% in 2017-18) and Kalburgi divisions i.e. -1.9% (decreased from 8.0% in 2003-04 to 6.1% in 2017-18). There is no such change

Table 6. Temporal Changes of Bajra Cultivation 2003-2004 and 2017-2018 in Karnataka

S No	Divisions	2003-2004		2017-2018		Change (%)
		Area (Hectares)	Area (%)	Area (Hectares)	Area (%)	
1	**Bengaluru**	4618	0.4	4682	0.4	0.0
2	**Belagavi**	102432	3.7	57530	1.7	-2.0
3	**Kalburgi**	196959	8.0	153960	6.1	-1.9
4	**Mysuru**	572	0.0	1704	0.1	0.1
Karnataka		**304581**	**3.9**	**217876**	**2.6**	**-1.3**

Source: Karnataka at a Glance - 2003-04 and 2017-18.

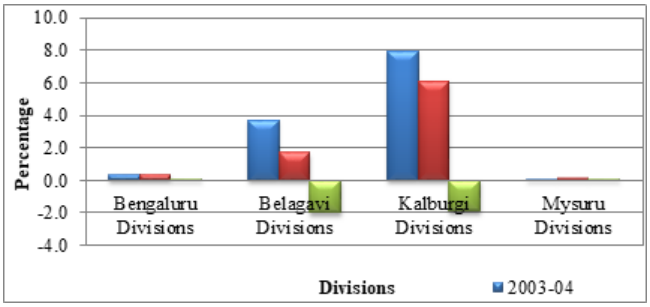

Fig. 6. Temporal Changes of Bajra Cultivation 2003-2004 and 2017-2018 inKarnataka

in Bengaluru divisions i.e. 0.0%. The reason behind this negative change is lack of irrigation facility.

Maize

Table 7. Temporal Changes of Maize Cultivation 2003-2004 and 2017-2018 in Karnataka

S No	Divisions	2003-2004		2017-2018		Change (%)
		Area (Hectares)	Area (%)	Area (Hectares)	Area (%)	
1	**Bengaluru**	241734	18.8	369666	30.7	11.9
2	**Belagavi**	273289	9.9	513791	15.4	5.5
3	**Kalburgi**	74024	3.0	230529	9.1	6.1
4	**Mysuru**	60497	4.9	190589	16.0	11.1
Karnataka		**649544**	**8.4**	**1304575**	**15.8**	**7.4**

Source: Karnataka at a Glance - 2003-04 and 2017-18.

The Table 7 and Figure 7 shows the Temporal Changes of Maize cultivation in the year 2003-04 and 2017-18. The state is divided into 4 divisions - Bengaluru, Belagavi, Kalburgi and Mysuru divisions. The entire state covered a total geographical area of 649544 hectares i.e. 8.4% in 2003-04 which increased to 1304575 hectares i.e. 15.8% in 2017-18 accompanied by a total change of 7.4%. There are drastic positive changes in all the divisions. The highest change is seen in Bengaluru divisions i.e. 11.9% (increased from 18.8% in 2003-04 to 30.7% in 2017-18) followed by Mysuru divisions i.e. 11.1%

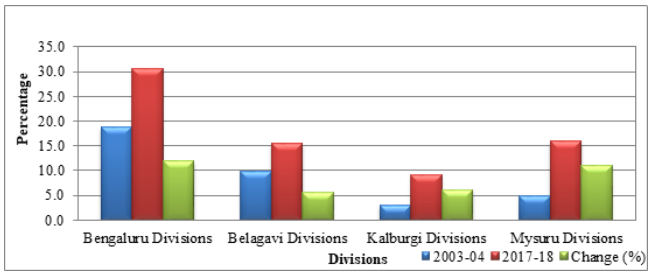

Fig. 7. Temporal Changes of Maize Cultivation 2003-2004and 2017-2018 in Karnataka

(increased from 4.9% in 2003-04 to 16.0% in 2017-18), Kalburgi divisions i.e. 6.1% (increased from 3.0% in 2003-04 to 9.1% in 2017-18) and the least change is seen in Belagavi divisions i.e. 5.5% (increased from 9.9% in 2003-04 to 15.4% in 2017-18). The reason behind this increment is good water availability or good irrigation facility.

Wheat

Table 8. Temporal Changes of Wheat Cultivation 2003-2004 and 2017-2018 in Karnataka

S No	Divisions	2003-2004		2017-2018		Change (%)
		Area (Hectares)	Area (%)	Area (Hectares)	Area (%)	
1	**Bengaluru**	1742	0.1	471	0.0	-0.1
2	**Belagavi**	199340	7.2	169615	5.1	-2.1
3	**Kalburgi**	45767	1.8	23156	0.9	-0.9
4	**Mysuru**	6	0.0	0	0.0	0.0
Karnataka		**246855**	**3.2**	**193242**	**2.3**	**-0.9**

Source: Karnataka at a Glance - 2003-04 and 2017-18.

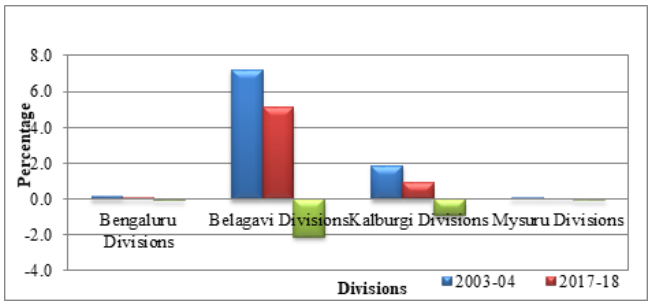

Fig. 8. Temporal Changes of Wheat Cultivation 2003-202004 and 2017-18 in Karnataka

The Table 8 and Figure 8 shows the Temporal Changes of Wheat cultivation in the year 2003-04 and 2017-18. The state is divided into 4 divisions - Bengaluru, Belagavi, Kalburgi and Mysuru divisions. The entire state covered a total geographical area of 246855 hectares i.e. 3.2% in 2003-04 which decreased

to 193242 hectares i.e. 2.3% in 2017-18 accompanied by a total change of -0.9%. There are negative changes in the divisions of the state. The highest is marked by Belagavi division i.e. -2.1% (decreased from 7.2% in 2003-04 to 5.1% in 2017-18) followed by Kalburgi divisions i.e. -0.9% (decreased from 1.8% in 2003-04 to 0.9% in 2017-18) and Bengaluru divisions i.e. -0.1% (decreased from 0.1% in 2003-04 to 0.0% in 2017-18). There is no change in Mysuru divisions i.e. 0.0%. The reason behind negative results are lack of irrigation facility or proper amount of water availability, urbanization, less rainfall etc.

Pulses

Table 9. Temporal Changes of Pulses Cultivation 2003-2004 and 2017-2018 in Karnataka

S No	Divisions	2003-2004		2017-2018		Change (%)
		Area (Hectares)	Area (%)	Area (Hectares)	Area (%)	
1	**Bengaluru**	204324	15.9	189219	15.7	-0.2
2	**Belagavi**	533469	19.3	1225113	36.8	17.5
3	**Kalburgi**	1031708	41.7	1127609	44.6	2.9
4	**Mysuru**	291100	23.7	296709	24.9	1.2
Karnataka		**2060601**	**26.6**	**2838650**	**34.4**	**7.8**

Source: Karnataka at a Glance - 2003-2004 and 2017-2018.

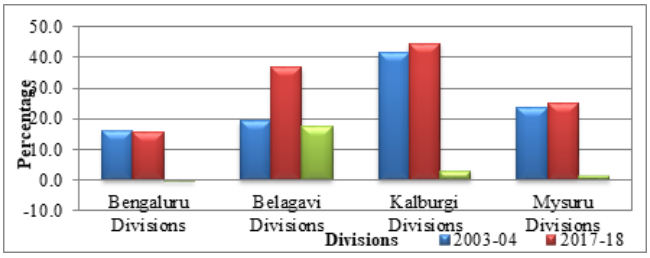

Fig. 9. Temporal Changes of Pulses Cultivation 2003-2004 and 2017-2018 in Karnataka

The Table 9 and Figure 9 shows the Temporal Changes of Pulses cultivation in the year 2003-04 and 2017-18. The state is divided into 4 divisions - Bengaluru, Belagavi, Kalburgi and Mysuru divisions. The entire state covered a total geographical area of 2060601 hectares i.e. 26.6% in 2003-04 which increased to 2838650 hectares i.e. 34.4% in 2017-18 accompanied by a total change of 7.8%. There are drastic positive changes seen in the divisions. The highest change is seen in Belagavi divisions i.e. 17.5% (increased from 19.3% in 2003-04 to 36.8% in 2017-18) followed by Kalburgi divisions i.e. 2.9% (increased from 41.7% in 2003-04 to 44.6% in 2017-18) and Mysuru divisions i.e. 1.2% (increased from 23.7% in 2003-04 to 24.9% in 2017-18). A negative change is seen in Bengaluru divisions i.e. -0.2% (decreased from 15.9% in 2003-04 to 15.7% in 2017-18). The reason behind the positive change is that pulses can be grown in any land and this crop does not have any issue with water availability.

Sugar Cane

Table 10. Temporal Changes of Sugarcane Cultivation 2003-2004 and 2017-2018 in Karnataka

S No	Divisions	2003-2004		2017-2018		Change (%)
		Area (Hectares)	Area (%)	Area (Hectares)	Area (%)	
1	**Bengaluru**	36082	2.8	6054	0.5	-2.3
2	**Belagavi**	230898	8.4	416122	12.5	4.1
3	**Kalburgi**	45308	1.8	73378	2.9	1.1
4	**Mysuru**	70431	5.7	35751	3.0	-2.7
Karnataka		**382719**	**4.9**	**531305**	**6.4**	**1.5**

Source: Karnataka at a Glance - 2003-04 and 2017-18.

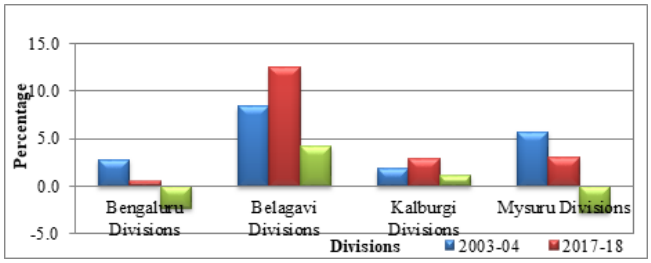

Fig. 10. Temporal Changes of Sugarcane Cultivation 2003-2004 and 2017-2018 in Karnataka

The Table 10 and Figure 10 shows the Temporal Changes of Sugarcane cultivation in the year 2003-04 and 2017-18. The state is divided into 4 divisions - Bengaluru, Belagavi, Kalburgi and Mysuru divisions. The entire state covered a total geographical area of 382719 hectares i.e. 4.9% in 2003-04 which increased to 531305 hectares i.e. 6.4% in 2017-18 accompanied by a total change of 1.5%. The highest positive change is seen in Belagavi divisions i.e. 4.1% (increased from 8.4% in 2003-04 to 12.5% in 2017-18) followed by Kalburgi divisions i.e. 1.1% (increased from 1.8% in 2003-04 to 2.9% in 2017-18). Negative changes are too seen and the highest is marked by Mysuru divisions' i.e. -2.7% (decreased from 5.7% in 2003-04 to 3.0% in 2017-18) followed by Bengaluru divisions i.e. -2.3% (decreased from 2.8% in 2003-04 to 0.5% in 2017-18). The reason behind the positive result is proper amount of water availability.

Cotton

The Table 11 and Figure 11 shows the Temporal Changes of Cotton cultivation in the year 2003-04 and 2017-18. The state is divided into 4 divisions - Bengaluru, Belagavi, Kalburgi and Mysuru divisions. The entire state covered a total geographical

Table 11. Temporal Changes of Cotton Cultivation 2003-2004 and 2017-2018 in Karnataka

S No	Divisions	2003-2004		2017-2018		Change (%)
		Area (Hectares)	Area (%)	Area (Hectares)	Area (%)	
1	**Bengaluru**	20541	1.6	16328	1.4	-0.2
2	**Belagavi**	237843	8.6	193774	5.8	-2.8
3	**Kalburgi**	89397	3.6	215180	8.5	4.9
4	**Mysuru**	45235	3.7	60049	5.0	1.3
Karnataka		**393016**	**5.1**	**485331**	**5.9**	**0.8**

Source: Karnataka at a Glance - 2003-04 and 2017-18.

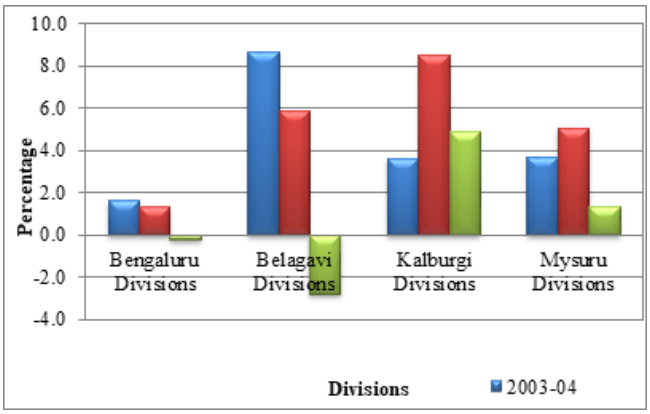

Fig. 11. Temporal Changes of Cotton Cultivation 2003-2004and 2017-2018 in Karnataka

area of 393016 hectares i.e. 5.1% in 2003-04 which increased to 485331 hectares i.e. 5.9% in 2017-18 accompanied by a total change of 0.8%. There are positive changes seen in the divisions and the highest is marked by Kalburgi divisions i.e. 4.9% (increased from 3.6% in 2003-04 to 8.5% in 2017-18) followed by Mysuru divisions i.e. 1.3% (increased from 3.7% in 2003-04 to 5.0% in 2017-18). There are also certain negative changes observed in the divisions and the highest is marked by Belagavi divisions i.e. -2.8% (decreased from 8.6% in 2003-04 to 5.8% in 2017-18) followed by Bengaluru divisions i.e. -0.2% (decreased from 1.6% in 2003-04 to 1.4% in 2017-18). Cotton is grown in deep black clayey soil which does not require more amount of water for its growth and for this reason there is a positive increase in its cultivation.

Conclusion

Present paper is detail study of cropping pattern of Karnataka state. The total cropped area of the state covered 40.7% in 2003-04 which increased to 43.3% in 2017-18. As such Pulsus is the dominant crop occupying over more than 34.4% in net cultivated area followed by maize (15.8%), jowar (12.6%) and paddy (10.7%) during 2017-18. The present analysis reveals that the region as a whole has experienced over 2.7% among them increase in the maize, pulses, sugar cane and cotton, whereas all other crops shows a decreasing trod. Pulses is the major increased crops as 7.8%. Pulses are grown all over the states.

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