International Journal of Current Advanced Research
ISSN: O: 2319-6475, ISSN: P: 2319-6505, Impact Factor: 6.614
Available Online at www.journalijcar.org
Volume 11; Issue 04 (D); April 2022; Page No.781-787
DOI: http://dx.doi.org/10.24327/ijcar.2022.787.0180

Research Article

CHANGING SCENARIO OF CROPPING INTENSITY IN RAJASTHAN:1994-95 TO 2014-15

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A R T I C L E I N F O

Article History:
Received 13th January, 2022
Received in revised form 11th February, 2022
Accepted 8th March, 2022
Published online 28th April, 2022

Key words:
Cropping intensity, Extent of irrigation, Choropleth method, Net sown area, Changes, Rainfall regime.

A B S T R A C T

The main purpose of the present paper is to reveal the changes in cropping intensity in Rajasthan during 1994-95, 2004-05 and 2014-15. The study is of three folds; The first part studies the spatial patterns of cropping intensity for 1994-95, 2004-05 and 2014-15. While, the second part finds out the changes which have taken place during this time period in Rajasthan and factors responsible. Whereas in third part, conclusions are drawn and suggestions are made. The paper has deduced that in 1994-95, average intensity of cropping in Rajasthan was 120.13 per cent, which has increased to 127.27 per cent in 2004-05 and 142.98 percent in 2014-15. Thus, 22.85 percent of positive volume of change is noted. It is also found that the western parts of Rajasthan are having comparatively low cropping intensity as compare to eastern parts. The reasons responsible for high variations in spatial distribution of cropping intensity during three time periods are; the nature of topography, soils, rainfall regime, cropping pattern, extent of irrigation, degree of farm mechanization, farmers' attitude, government policies, etc. The study further reveals that in 1994-95, there were 7 districts with low cropping intensity (less than 120 per cent) which has decreased to 6 districts in 2004-05 and further declined to only 1 district in 2014-15. On the other hand, the districts with moderate and high cropping intensity have increased during study period which is quite evident from fig. 2,3 and 4. The study has further observed that reasons for high cropping intensity in eastern parts of Rajasthan are largely the result of high extent of irrigation and comparatively high rainfall as compare to western parts. The present paper is based on secondary sources of data. The unit of study is district. Three time periods are taken for studying the changes in cropping intensity from 1994-95 to 2014-15. Statistical methods and cartographic techniques are applied in the present study.

INTRODUCTION

With the advancement of technology and mechanisation in the field of agriculture, farmers have become more potential to grow more than one crop in one agricultural year in same piece of land. In the study region, multiple cropping is possible because crops can be grown throughout the year owing to winter and summer seasons (Kulshrstha *et.al*., 2014). Moreover, there is much possibility to grow a variety of crops due to diversified geo-climatic conditions. Moisture and temperature play largely a decisive role in deciding how many and what types of crops can be grown.

In Rajasthan moisture is provided by rainfall and irrigational facilities, thus, areas with more rainfall and developed irrigational facilities have more probability to grow water intensive crops as well as re-use of net sown area as compare to areas with deficit rainfall and less irrigational facilities. Cropping intensity depicts the potentiality of land as well as farmers and also it is an index which measures the magnitude of net sown area is being re-used by farmers for growing crops. To demarcate the regions of intensive agriculture, Whittlesey (1936) has adopted cropping intensity as one of the five bases criteria for classifying the world agricultural regions. In simple words, cropping intensity means to raise more than one crop in one agricultural year from the same piece of land. If one crop raises, the cropping intensity would be 100 per cent, if two crops then 200 per cent and so on(Sohal,1979). Singh (1986) calculated crop intensity while preparing 'Agricultural Planning Atlas of Punjab'. Singh (1996) has observed the concept of cropping intensity as an important basis for agricultural regionalization. Sohal (2003) has revealed that patterns of cropping intensity and geo-climatic conditions are generally positively correlated. Nag, *et.al* (2009) also stated that controlling factors of cropping intensity are rainfall, growing period, soil moisture retention, availability of labour, depth and quality of aquifers of sub soil water, adequacy of irrigational facilities, short duration high yielding variety of seeds, etc. Deshmukh, et.al.(2017) supplemented that irrigation is a major factor in intensification of agriculture. In Rajasthan, intensity of cropping varies from arid to semi-arid areas as well as west to east. Availability of moisture and comfortable temperature make possible high

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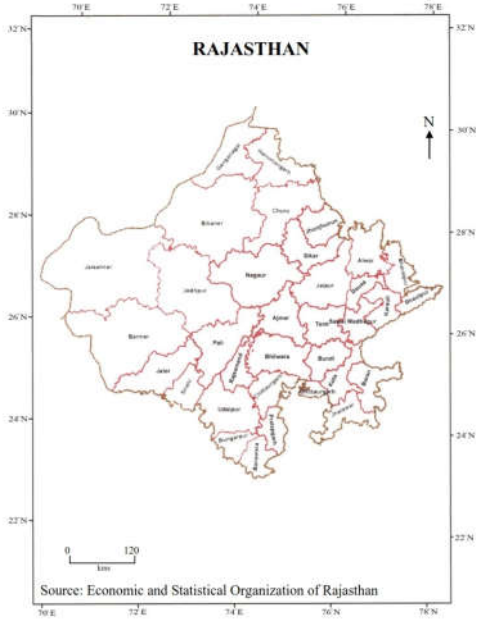
cropping intensity in the south –eastern and north- eastern parts, while lack of moisture content and high temperature make it hard to grow more crops in one agricultural year in the western and south western parts. Thus, cropping intensity is low to moderate in west of Aravallis and moderate to high in east from Aravallis.

Study area (fig.1)

Rajasthan is situated in the north- western part of India. It extends from 23^0 3' N to 30^0 12'N latitudes and 69^0 30'E to 78° 17' E longitudes, covering an area of about 342,274 square kilometres. It forms international boundary with Pakistan in the West, while neighbouring states are Punjab, Haryana, Uttar Pradesh, Madhya Pradesh and Gujarat. The Thar desert of Rajasthan is part of great plains while rest of Rajasthan belongs to peninsular India. Here, average annual rainfall is 50 cms and maximum temperature reaches up to 51° c in Sri Ganganagar district. The coefficient of variability in annual rainfall is over 65 per cent. There are two climatic zones; arid and semi-arid. Here, soils vary from sandy to clayey. Its total population is 68,548,347 persons, of which male and female are 35,550,997 and 32,997,440 respectively, according to 2011 census. The average density of Rajasthan is 200 persons per sq. kilometres in 2011. The number of districts in Rajasthan are 33 in 2014-15.

Fig.1



Aims of the study

The main aim of the present study is to reveal the spatial patterns of cropping intensity in Rajasthan and changes occurred during 1994-95 to 2014-15. It is also the aim of the study to know the factors responsible for changes in cropping intensity in the study region.

Hypothesis

Ushering of green revolution technology and magnitude of cropping intensity are positively co - related.

Methodology and sources of data

The paper in hand is empirical in nature and is based on secondary sources of data which is obtained from economic and statistical organisation, Rajasthan. The unit of study is district. Three time periods of 1994-95, 2004-05 and 2014-15 are selected and for each time period three year's average is taken like 1993-94, 1994-95 and 1995-96, etc. Simple statistical methods and simple choropleth technique are applied.

DISCUSSION AND RESULTS

Patterns of cropping intensity and changes are discussed under the following three heads;

1. Spatial patterns of cropping intensity: 1994-95 ,2004-05 and 2014-15.
2. Changes in cropping intensity: 1994-95 to 2014-15.
3. Conclusions and suggestions.
4. Spatial patterns of cropping intensity in 1994-95 (fig.2):

In 1994-95 the average cropping intensity for the study region was 120.13 per cent, but owing to various physical and socio-economic factors it was in heterogeneous in spatial pattern and ranged between lowest of 101.14 per cent in Jaisalmer district to as high as 152.80 per cent in Chittaurgarh district. To know the factors responsible for these spatial variations in cropping intensity help is taken from fig. 2 and table no. 1 which depicts following four categories;

Areas of very high cropping Intensity (> 160 per cent)

Unfortunately, no district had experienced very high cropping intensity in 1994-95. Thus, none of the district found in this category.

Areas of high cropping intensity (140-160 per cent)

Six districts found in this category which laid in south-eastern parts of Rajasthan, forming one belt and one patch. There were five districts in this belt namely; Rajasmand, Bhilwara, Chittaurgarh, Partapgarh and Banswara. Here, moderate to high rainfall, sandy loam to loamy soils, comparatively small size of land holdings, moderate to high extent of irrigation, relatively developed agricultural infrastructure enabled farmers to re-use most of the net sown area under area sown more than once. Thus, it led to high total cropped area which resulted into high intensity of cropping. The patch of this category comprised Jhalawar district. Here, also favourable geo-climatic conditions and developed agricultural infrastructure supplemented by high extent of irrigation became responsible for high magnitude of cropping intensity.

Areas of moderate cropping intensity (120-140 per cent)

It was the largest category with 20 districts and 60.60 per cent of total occurrences. It largely covered eastern parts and extreme northern parts and had three belts.

Table no 1 Cropping Intensity in Rajasthan:1994-95 to 2014-15

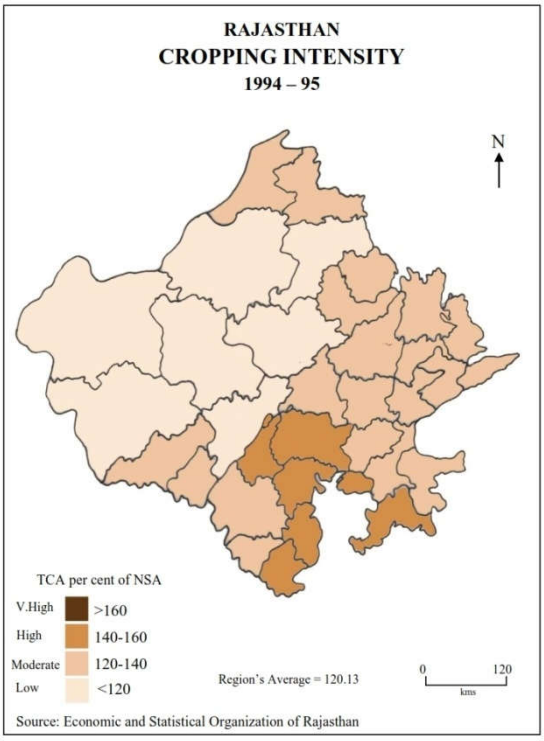
(in per cent)

Districts	1994-95	2004-05	2014-15
Ajmer	120.60	126.70	158.05
Alwar	139.96	157.14	172.53
Banswara	147.87	148.28	151.26
Baran	131.13	144.05	186.69
Barmer	103.19	106.24	110.79
Bharatpur	125.58	140.10	152.39
Bhilwara	143.75	144.60	156.43
Bikaner	105.91	106.95	120.96
Bundi	134.89	139.41	172.59
Chittaurgarh	152.80	155.44	169.55

Churru	102.53	122.37	138.34
Dausa	139.98	153.26	168.84
Dhaulpur	124.90	136.65	148.92
Dungarpur	134.08	143.97	151.12
Ganganagar	131.61	132.99	158.30
Hanumangarh	124.62	139.31	151.06
Jaipur	128.92	150.11	166.37
Jaisalmer	101.14	108.91	128.61
Jalore	122.59	126.51	140.84
Jhalawar	145.01	159.70	191.49
Jhunjhunu	129.05	157.00	170.20
Jodhpur	104.60	107.17	120.02
Karauli	128.96	153.11	167.68
Kota	133.01	148.66	186.24
Nagaur	107.03	116.44	158.30
Pali	112.00	116.98	130.79
Partapgarh	140.02	158.00	166.87
Rajasmand	140.59	142.51	147.78
S. Madhopur	122.15	121.33	137.30
Sikar	121.85	142.70	152.18
Sirohi	123.44	128.61	144.43
Tonk	120.02	127.75	138.21
Udaipur	135.03	136.03	145.46
Rajasthan	**120.13**	**127.27**	**142.98**

Source: Economic and Statistical Organisation of Rajasthan

Fig.2



First belt confined to northern parts including the districts of Ganganagar and Hanumangarh. Here, sandy to loamy soils, low rainfall, moderate extent of irrigation, progressive immigrants from neighbouring districts of Punjab where intensive farming is done, cultivation of wheat, pulses during winters and cotton, bajra, guar, etc. in summers. Thus, farmers used most of the net sown area for double cropping and as a result, the moderate magnitude of cropping intensity was noted. The second belt, had 14 districts and large in size. These districts were Jhunjhunu, Sikar, Alwar, Jaipur, Ajmer, Tonk, Dausa, S.Madhopur, Karauli, Dhaulpur, Bharatpur, Bundi, Kota and Baran. Here, moderate to high rainfall, a variety of soils, moderate extent of irrigation, etc. enabled the farmers to re-use the net sown area in areas with more irrigation facilities and raised two crops in one agricultural year. Important crops of these districts were bajra, pulses, jowar, wheat, etc. The third belt contained the south – western parts and had four districts namely Dungarpur, Udaipur, Sirohi and Jalore. Here, moderate to high rainfall, moderate to high extent of irrigation, presence of Aravallis, but on gentle slopes farmers cultivated maize and in valley areas rice particularly in Udaipur and Dungarpur districts, which were responsible for moderate degree of cropping intensity.

Areas of low cropping intensity (<120 per cent)

Though this category had about 45 per cent of the geographical area of the state but the number of districts were seven only and these were namely; Jaisalmer, Barmer, Jodhpur, Nagaur, Pali and Churru. These districts laid mostly west of Aravallis and formed the part of Thar desert. There were frequent occurrences of sand dunes, high temperature, low and scanty rainfall, course sandy to sandy loam soils which were low in fertility, poor aquifers of sub-soil water, low extent of irrigation, large size of land holdings, drought occurrence, high chance of crop failure, low degree of farm mechanization, etc. Owing to these reasons, farmers hardly grew double crop in one agricultural year on their lands which resulted into low magnitude of cropping intensity.

The study has observed that the magnitude of cropping intensity mainly decreased from east to west, from south as well as north to central parts. Moreover, patterns of cropping intensity and patterns of rainfall, irrigation, soil fertility and agricultural infrastructural development are coincided with each other.

Patterns of cropping intensity 2004-05(fig.3)

Average Index of cropping intensity in Rajasthan was 127.27 per cent in 2004-05 which was recorded lowest of 106.24 percent in Barmer district and highest of 159.70 per cent in Jhalawar district. For making explanation of spatial distribution of cropping intensity in Rajasthan for the year 2004-05, table no. 1 and fig. 3 is mapped which shows the following four categories.

Areas of very high share of cropping intensity (>160 per cent)

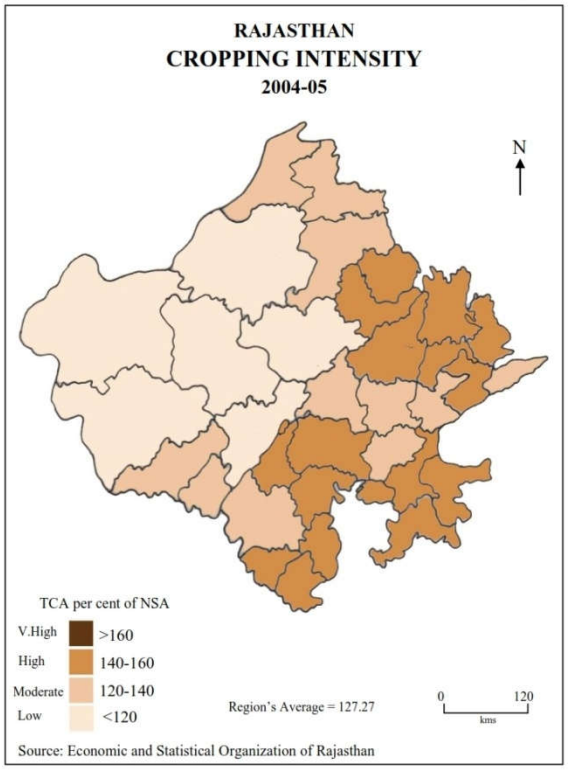
Unfortunately, this category had no districts with high share of cropping intensity in 2004-05.

Areas of high share of cropping intensity (140-160 per cent)

The category of moderate share comprised two belts, lying in the eastern and southern parts of the state. First belt covered seven districts namely Sikar, Jaipur, Jhunjhunu, Alwar, Bharatpur, Dausa and Karauli. The main reasons were high rainfall, comfortable temperature, relatively fertile soils, high extent of irrigation, developed agricultural infrastructure, etc.

All these factors had encouraged the farmers to grow more than one crop in one agricultural year from the same piece of land. whereas second belt included 9 districts namely; Partapgarh, Rajasmand, Chittaurgarh, Bhilwara, Dungarpur, Banswara, Kota, Baran and Jhalawar. Here, also favourable geo-climatic conditions and high extent of irrigation with developed agricultural infrastructure became responsible factors for intensive use of land. Hence, high share of cropping intensity was noted in this category.

Fig.3



Areas of moderate share of cropping intensity (120-140 per cent)

It was scattered in the study region covering three belts and one patch, including 33.33 per cent of the total occurrences. First belts had three districts namely Ganganagar, Hanumangarh and Churru. Here, sandy to sandy loam soils, high temperature, moderately developed agricultural infrastructure, progressive attitude of the farmers, etc. became responsible reasons for moderate share of cropping intensity. The second belt included 4 districts Tonk, Ajmer, S.Madhopur and Bundi. The responsible factors were moderate to high rainfall, comparatively fertile soils, moderate extent of irrigation, moderate magnitude of mechanization, etc. Owing to these factors farmer preferred to take more than one crop from the same piece of land in one agricultural year. Whereas the third belt comprised districts of Jalore, Sirohi and Udaipur. Here, favourable geo-climatic conditions with existence of Aravallis led to moderate share of cropping intensity in this category. The remaining patch of this category had only 1 district of Dhaulpur. The semi-arid conditions with adequate irrigational facilities enabled farmers to re-use the net sown area in one agricultural period. All these mentioned reasons became responsible for moderate magnitude of crop intensity.

Areas of low share of cropping intensity (<120 per cent):

Remaining 6 districts which accounted of 18.18 per cent of the total occurrences formed this low category of cropping intensity. All these districts were lying in western part of Rajasthan covering the Thar desert. From Physical environmental point of view, these were unfavourable for agriculture because of frequent occurrences of sand dunes, course sandy to sandy soils, alkaline sub- soil water, poor irrigational facilities supplemented by less developed agricultural infrastructure and socio-economic conditions of the farmers. Owing to these harsh climatic conditions it became hard to take one crop in one agriculture year. Hence, resulted into low magnitude of crop intensity.

Patterns of cropping intensity 2014-15 (fig.4)

Rajasthan has 18,267,698 hectares under net sown area and 26,119,527 hectares under total cropped area which yield 142.98 per cent of cropping intensity. This average figure is heterogeneously distributed which is evident from the lowest and highest value i.e. 110.79 per cent in Barmer district and 191.49 per cent in Jhalawar district, respectively. Fig. and table no. 3 is prepared to explain the spatial patterns and reasons responsible for uneven distribution of crop intensity. Figure displays four categories which are defined below;

Very high category of cropping intensity (> 160 per cent)

It comprises 11 districts and 33.33 per cent of total occurrences, forming two belts and one patch. Roughly, this category confines to eastern parts. First belt has four districts namely Bundi, Kota, Jhalawar, Baran, Chittaurgarh and Partapgarh. Here, reasons for high crop intensity are identified as suitable relief, high rainfall, fertile soils, high extent of irrigation, traditionally wheat growing areas and developed agricultural infrastructure. The second belt includes the districts of Jaipur, Alwar, Dausa and Karauli. Here, the factors for high crop intensity are moderate to high rainfall, moderately fertile soils, moderate extent of irrigation, recently developed agricultural infrastructure, etc. The remaining patch of this category contains Jhunjhunu district. Because of developed agricultural infrastructure supplemented by small size of land holdings, farmers have selected to grow crops both in kharif and rabi season on same piece of land, which are the reasons for very high crop intensity.

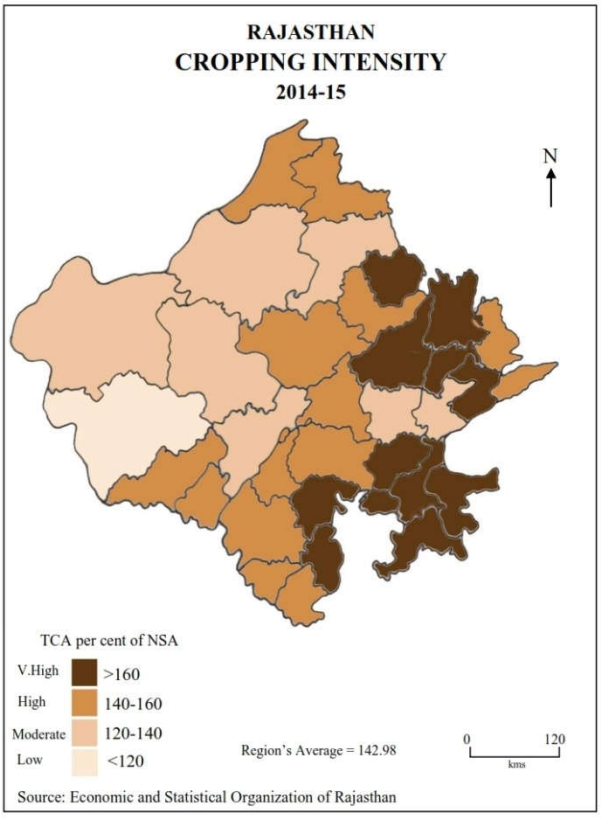
High category of cropping intensity (140-160 per cent)

Fourteen districts and 42.42 per cent of total occurrences from this category. it is scattered in nature and having two belts and one patch. First belt runs through the central parts towards south including 10 districts namely; Sikar, Nagaur, Ajmer, Bhilwara, Rajasmand, Udaipur, Dungarpur, Banswara, Sirohi and Jalore. These are areas of Aravallis and their off shoots with intermittent plain areas. Here low to high rainfall, soil with medium fertility, moderate to high extent of irrigation, moderately developed agricultural infrastructure, farmer's preference to sow more than one crop from the same piece of land in one agricultural year. Second belt has two districts and confines to extreme northern parts having Hanumangarh and Ganganagar districts. Here, sandy to loamy soils, low rainfall, moderate to high extent of irrigation, large size of land holdings, high magnitude of farm mechanization, etc. enthuse the farmers to sow more than one crop a year in their land holdings. All these reasons leads to high crop intensity. The patch of this category lays in extreme north-eastern parts comprising two districts namely Dhaulpur and Bharatpur. Here, loamy sand to loamy soils, high rainfall, moderate irrigational facilities, etc. are responsible for high crop intensity.

Moderate category of cropping intensity (120-140 per cent)

Only 7 districts fall in this category which is largely confine to Thar desert with exception of S.Madhopur and Tonk district which are part of eastern Rajasthan plains.

Fig.4



Districts fall in this category are namely Jaisalmer, Pali, Jodhpur, Bikaner, Churru. Here, frequent occurrences of sand dunes, sandy soils which are poor in fertility, saline & alkaline sub-soil water which is unfit for irrigation, inadequate irrigational facility, low rainfall, high temperature, large size of land holdings, low degree of farm mechanization, poor agricultural infrastructure, etc. are the factors which lead to low crop intensity. Other two districts of this category are Tonk and S,Madhopur. There, though rainfall varies from moderate to high but soil is poor in fertility predominance of Aravallis, low extent of irrigation, poor agricultural infrastructure not allow farmers to raise more crops in a year from same piece of land and ultimately resulted into low crop intensity.

Low category of cropping intensity (<120 per cent)

This category comprises only one district of Barmer, which lies in western parts. These are areas of sand dunes, sandy soil, low rainfall, high temperature, hardly an irrigational facility, poor soils in fertility, very large size of land holdings, frequent occurrences of sand dunes, less developed agricultural infrastructure, etc. are responsible for low crop intensity.

On the whole, it is observed that northern, eastern and southern parts with some exceptions have experienced high crop intensity because of comparatively favourable physical-socio-economic environment. Whereas the western parts with extreme unfavourable geo-climatic conditions and poor agricultural infrastructure have recorded low crop intensity. In rest of the parts of the study region crop intensity is recorded moderate.

Changes in cropping intensity in Rajasthan: 1994-95 to 2014-15 (fig.5)

With the introduction of liberalization period certain changes have taken place in socio –economic factors, agricultural infrastructure, government policies, etc. These factors combindly led to changes in irrigation, density of tractors, density of tube wells, farm mechanization, marketing, price mechanism, liberal loan facilities, etc. which consequently led to changes in area sown more than once, cropping pattern, etc. Thus, this increase in area sown more than once has directly affected the crop intensity in the study region during 1994-95 to 2014-15. Consequently, average cropping intensity has increased from 120.13 per cent to 142.98 per cent during 1994-95 to 2014-15 and resulted into overall volume of change of 22.85 per cent. Hence, to reveal the patterns of change in crop intensity help is taken from fig. 2,3 and 5. These figures depict following points;

In 1994-95 low category had 7 districts and laid in western parts of the study region and covered about 45 per cent of the state area. But in 2014-15, 6 districts have joined moderate category (120-140 per cent) leaving aside only Barmer district in low category. The moderate category was predominant in Rajasthan with 20 districts and 66.60 per cent of total occurrences in 1994-95. But out of these districts Jhunjhunu, Alwar, Jaipur, Dausa, Karauli, Baran, Kota and Bundi have joined very high category over 160 per cent in 2014-15. The remaining districts of this category have shifted to high category (140-160 per cent) namely; Ganganagar, Hanumangarh, Sikar, Ajmer, Dungarpur, Udaipur, Sirohi, Jalore, Dhaulpur and Bharatpur. In respect of districts with high crop intensity (140-160 per cent) namely; Bhilwara, Rajasmand and Banswara remained under same category.

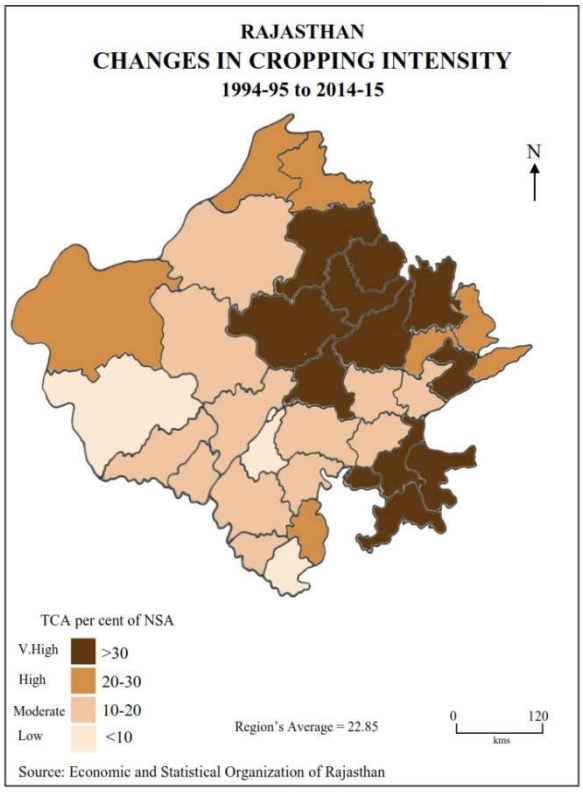
Table no. 2 Changes in Cropping Intensity in Rajasthan: 1994-95 to 2014-15

(in per cent)

Districts	1994-95 to 2014-15
Ajmer	37.45
Alwar	32.57
Banswara	3.39
Baran	55.56
Barmer	7.60
Bharatpur	26.81
Bhilwara	12.68
Bikaner	15.05
Bundi	37.70
Chittaurgarh	16.75
Churru	35.81
Dausa	28.86
Dhaulpur	24.02
Dungarpur	17.04
Ganganagar	26.69
Hanumangarh	26.44
Jaipur	37.45
Jaisalmer	27.47
Jalore	14.33
Jhalawar	46.48
Jhunjhunu	41.15
Jodhpur	15.42
Karauli	38.72
Kota	53.23
Nagaur	51.27
Pali	18.79
Partapgarh	26.85
Rajasmand	7.19
S. Madhopur	16.15
Sikar	31.33
Sirohi	20.09
Tonk	18.19
Udaipur	10.43
Rajasthan	**22.85**

Source: Economic and Statistical Organisation of Rajasthan.

Fig.5



While, Chittaurgarh and Partapgarh have joined the very high category in 2014-15. Thus, as a result in 2014-15 with respect of crop intensity in the state there is only district i.e. Barmer which had low crop intensity in 1994-95. Thus, comparative study of crop intensity of fig. 2 and 4 shows that there were seven districts in low category in 1994-95, but in 2014-15 there is only one district i.e. Barmer. While, the number of districts in moderate category has declined from 20 to 7, high category increased from 6 to 14 and there were no districts in very high category in 1994-95 but in 2014-15 there are 11 districts. Hence, these changes of crop intensity show drastic increase in crop intensity in the study region during present investigation.

Figure 5th exhibits that the lowest and highest change of cropping intensity during 1994-95 to 2014-15 is recorded in districts of Barmer, Rajasmand, Banswara, Churru, Sikar, Jhunjhunu, Nagaur, Ajmer, Jaipur, Alwar, Karauli, Bundi, Kota, Baran and Jhalawar and respectively. Moreover, this figure portrays four categories; areas of high category covered 12 districts and are mainly lying in central and eastern parts. These are 12 in number which are mainly Churru, Jhunjhunu, Nagaur, Ajmer, Jaipur, Alwar, Karauli, Bundi, Kota, Jhalawar and Baran. Reasons for very high change in cropping intensity i.e. over 30 per cent are reclamation of soils, increase in extent of irrigation, increase in infrastructural facilities, farm mechanization, etc. which enthuse the farmers to grow double cropping in most of the land which they own. It is noted that 7 districts form the category of high crop intensity. These districts were mostly lying in northern and north-eastern parts with the exception of Jaisalmer district in the west. All these areas are also have experienced changes in extent of irrigation, increase in cropped area, developed agricultural infrastructural facilities, etc. Same in the case with moderate category with 11 districts namely Bikaner, Jodhpur, Jalore, Sirohi, Pali, Udaipur, Dungarpur, Chittaurgarh, Bhilwara, Tonk and S.Madhopur, where the change was between 10 to 20 per cent, while in case of low category the position of Barmer district remained same because it had low extent of irrigation in both years but in respect of Rajasmand and Banswara the low change was owing to high cropping intensity in 1994-95 as well as in 2014-15.

Conclusions and Suggestions

CONCLUSIONS

The following conclusions are drawn

1. In 1994-95, the average cropping intensity in Rajasthan has increased from 120.13 percent to 127.27 per cent and 142.98 per cent in 2004-05 and 2014-15 respectively and recorded total positive volume of change of 22.85 per cent during study period.
2. It is also observed that 7 districts were having less than 120 per cent cropping intensity in 1994-95 whereas the number of districts declined to 6 in 2004-05 and to 1 in 2014-15. While, there was no district registered under very high category (>160 per cent) of cropping intensity in 1994-95 and 2004-05 but in 2014-15 this category has recorded 11 districts. All this is the result of extension in irrigation facilities, development of agricultural infrastructure, government policies, etc. Specifically speaking, majority of eastern districts are having high to very high cropping intensity in 2014-15 with some exceptions. It is also revealed that the districts having either low or moderate crop intensity in 1994-95 have experienced above 30 per cent increase in crop intensity.
3. The increase in cropping intensity in Rajasthan has become instrumental in rise of agriculture production which has increased from 14 million tonnes in 1994-95 to 27.5 million tonnes in 2014-15 which is almost doubled during the study period. It is also observed that the average intensity of Rajasthan was 120.13 per cent in 1994-95, which has increased to 142.98 per cent in 2014-15, whereas India's average cropping intensity was 131.18 per cent in 1994-95 increased to 138.66 per cent in 2014-15. Thus, in lieu to India, Rajasthan's pace of increase in crop intensity is higher.

Suggestions

Following suggestions are made for further increase in cropping intensity in Rajasthan:

1. The development in irrigation facilities should be done so that farmers can grow at least one crop in their land.
2. Stress should be given on agricultural research and extension services for increasing the crop intensity.
3. Short duration high yielding variety of seeds of wheat, oilseeds, pulses, maize, guar, etc. should be developed which require less watering also.
4. Liberal credit facilities should be given to farmers for the purchase of agriculture machinery, implements, fertilizers, seeds, etc. So that they can bring more area under crops.
5. In case of crop failure, farmers should be generously compensated.

If these recommendations are implemented, thus the intensity of cropping can be increased significantly in the state.

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How to cite this article:

Shivjeet Kaur *et al* (2022) 'Changing Scenario of Cropping Intensity In Rajasthan:1994-95 to 2014-15', *International Journal of Current Advanced Research,* 11(04), pp. 781-787. DOI: http://dx.doi.org/10.24327/ijcar.2022. 787.0180

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