



## CHANGING CROPPING PATTERNS IN BHARATPUR DISTRICT, RAJASTHAN

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### **ABSTRACT :**

*Pioneering work by agriculture scientists and the efforts of farmers has helped to achieve a breakthrough in the agriculture sector in the 1960s, popularly known as the 'Green Revolution'. High agricultural production and productivity achieved in subsequent years has been the main reason for attaining food security to a large extent. The country has not witnessed any big technological breakthrough in agriculture since then.*

**KEYWORDS :** *agriculture scientists , agriculture sector , Green Revolution.*

### **1.1 INTRODUCTION :**

The relatively weak supply responses to price hikes in agricultural commodities, especially food articles, in the recent past brings back into focus the central question of efficient supply chain management and need for sustained levels of growth in agriculture and allied sectors. The choice before the nation is clear to invest more in agriculture and allied sectors with the right strategies, policies, and interventions. This is also a 'necessary' condition for 'inclusive growth' and for ensuring that the benefits of growth reach a larger number of people (Economic Survey, 2011).

The growth of agriculture and allied sectors is still a critical factor in the overall performance of the Indian economy. As per the 2010-11 advance estimates released by

the Central Statistics Office (CSO) on 07.02.2011, the agriculture and allied sector accounted for 14.2 per cent of the gross domestic product (GDP), at constant 2004-05 prices. This is only marginally below the record production of 234.47 million tons of food grains in 2008-09. The country is likely to achieve record production of wheat (81.47 million tons), pulses (16.51 million tons) and cotton (33.93 million bales of 170 kg. each) this year.

Irrigation is one of the most important inputs for enhancing productivity and is required at different critical stages of plant growth of various crops. The Government of India has taken up irrigation potential creation through public funding and is assisting farmers to create potential on their own farms. Substantial irrigation potential has been created through major and medium irrigation schemes. The total irrigation potential in the country has increased from 81.1 million hectares in 1991-92 to 108.2 million hectares in March 2010.

## **1.2: CROPPING INTENSITY**

Cropping intensity is an indicator of agriculture development which is simply measured by area sown more than once. If a parcel of land is cultivated during all the agricultural season Kharif, Rabi and Zaid then it will be utilized optimum and level of agriculture will be very high because one can harvest three crops in an agricultural year. The district observed cropping intensity of around 140 per cent during the study period. It means agricultural land of the district were not able to be cultivated during all agriculture season. The district has observed more concentration of rabi crop than kharif crop. Similarly summer crops were found negligible in the district. Irrigation is one the major factor which affects the cropping intensity. More than one crop is possible by providing soil moisture to the new crop.

Sustainable agriculture development has remained a major challenge for food security. The district has observed gradual increase in CI from TE 1995-98 to TE 2007-10 i.e. an increase in 16 percent from a base of 128.8 percent. But uncertainty still lies in the agriculture and huge fluctuations in the CI itself explains the risk involves among the farmer when we look into year wise CI of the district. On one hand CI has touched the climax of 150 per cent and on the other hand it dipped down to 138 per cent in the previous year. This instability is mainly due to erratic rainfall pattern and irrigation.

Tehsil wise analysis of the CI suggests that Weir Tehsil emerged at a better position during the study period. Average CI was around 151 per cent followed by Kama (150.4 percent). Bayana also reported very high CI. During TE 2007-10, Weir has reported 161 per cent CI followed by Bayana. So far as an increase in CI is concerned, Weir and Bayana have reported an increase of more than 20 per cent and Kumher and Pahari were

at the bottom at around 10 per cent increase in CI. In the map 6.1 and 6.2, we find that less than 145 percent CI in most of tehsils viz. Pahari, Nagar, Deeg, Kumher, Bharatpur and Rupwas. Nadbai has reported CI in between 145 and 150 percent while it is in between 155 and 60 percent in Kaman and Bayana. Only Weir has shown more than 160 percent CI. So far as changes is concern, except Bayana all tehsils have reported more growth in CI during 1995-98 to 2001-2004. In fact, Kumher and Pahari have reported lowest CI growth during study period.

### 1.3 CROPPING PATTERN

**Table 1.1: Cropping Pattern in 1995-2010**

Crop	Mean 1995-10		TE 1995-98		TE 2001-04		TE 2007-10	
	Rank	percent area	Rank	percent area	Rank	percent area	Rank	percent area
Mustard	1	35.5	1	41.4	1	31.7	1	34.6
Wheat	2	24.7	2	20.7	2	28.1	2	26.8
Bajra	3	18.3	3	16.7	3	18.3	3	19.9
Jawar	4	7.9	5	5.3	4	8.3	4	9.3
Fodder	5	4.2	7	2.1	5	4.8	5	4.7
Gram	6	3.6	4	7.1	6	3.1	7	1.0
ORP	7	1.9	6	2.9	9	0.9	10	0.3
Guar	8	1.0	9	0.5	7	1.8	6	1.0
Barley	9	0.8	8	0.9	8	0.9	8	0.7
Vegetable	10	0.4	10	0.3	10	0.4	11	0.3
Potato	11	0.3	11	0.1	11	0.2	9	0.6

Source: Calculated from various issues of District Statistical Abstract of Bharatpur District Rajasthan

As per share of crop in cropping pattern of the district, Bharatpur emerged as Mustard Region since it is rank one crop. In fact, Mustard, Wheat and Bajra have remained top three crops of the district. However, the share of GCA under these crops was varying over time. On an average more than one third of GCA has been found under mustard. Maximum area under mustard was sown during the year 1995-96 i.e. 48 per cent and during the year 2001-02 it came down to 23.4 per cent.

Wheat emerged as the second most important crop of the district throughout the study period with ¼ th cultivated area under it. During TE 1995-98, it occupied 20.7 per cent area and it increased up to 28.1 per cent by TE 2001-04 and then declined to 26.8 percent by TE 2007-10. Wheat as rabi crop seems to be competing with mustard mainly and its area increases or decreases

In TE 1995-98, share of mustard in cropping pattern was 41.26 percent followed by wheat (20.63 percent) in the district. Along with Bajra, these three crops cover around

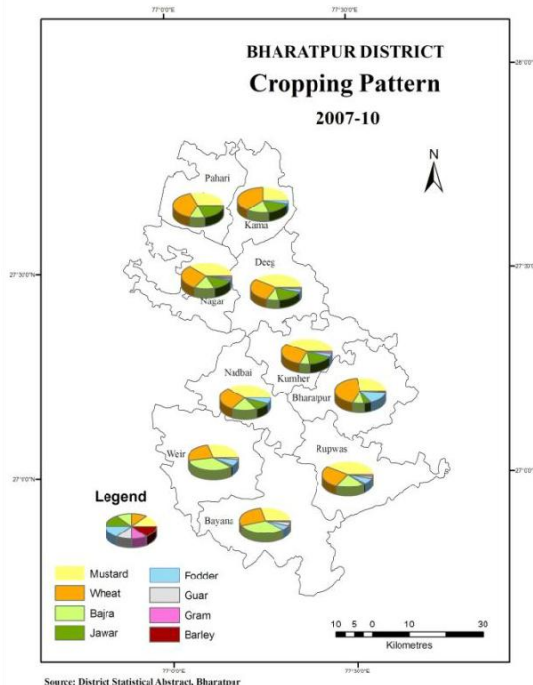
80 percent area of GCA. However, cropping pattern of the tehsils in this TE has a different story. Jawar and Gram emerged as another important crop with more than 12 percent area in the GCA.

tehsil wise picture of cropping pattern of Bharatpur district for TE 2001-04. It is true that mustard, wheat and Bajra were three most important crop with 78 percent share in GCA but the story was varying across tehsils. Wheat has been found as most important crop in Bharatpur, Kama and Pahari tehsils whereas Bajra is dominating in

**Table 1.2: Tehsil wise Cropping Pattern in Bharatpur District during 1995-2010**

Tehsils	Jawar	Bajra	Guar	Wheat	Barley	Gram	Mustard	ORP	Fodder
Bayana	0.80	33.14	2.28	23.28	0.37	4.16	29.12	0.15	3.61
Bharatpur	6.52	9.62	0.46	35.23	1.09	1.76	33.13	2.38	7.79
Deeg	15.01	10.07	0.33	23.27	1.10	4.97	41.02	0.87	2.08
Kama	13.47	18.32	0.58	32.73	0.91	3.14	22.87	2.40	1.78
Kumher	14.62	8.79	0.34	24.63	1.01	4.91	40.58	0.74	3.19
Nadbai	6.85	18.58	0.93	20.69	0.68	2.50	43.92	0.72	3.89
Nagar	11.70	14.65	1.13	23.74	1.07	4.88	35.13	3.93	1.33
Pahari	12.47	12.02	0.34	31.10	0.90	3.54	28.76	7.04	0.83
Rupwas	1.15	21.50	1.66	21.71	0.48	2.82	41.59	2.54	4.08
Weir	2.08	31.60	1.62	18.75	0.32	3.32	35.78	0.16	4.73
District	7.95	18.26	1.02	24.69	0.76	3.58	35.38	1.90	4.22

Source: Calculated from various issues of District Statistical Abstract of Bharatpur District Rajasthan Bayanonly.



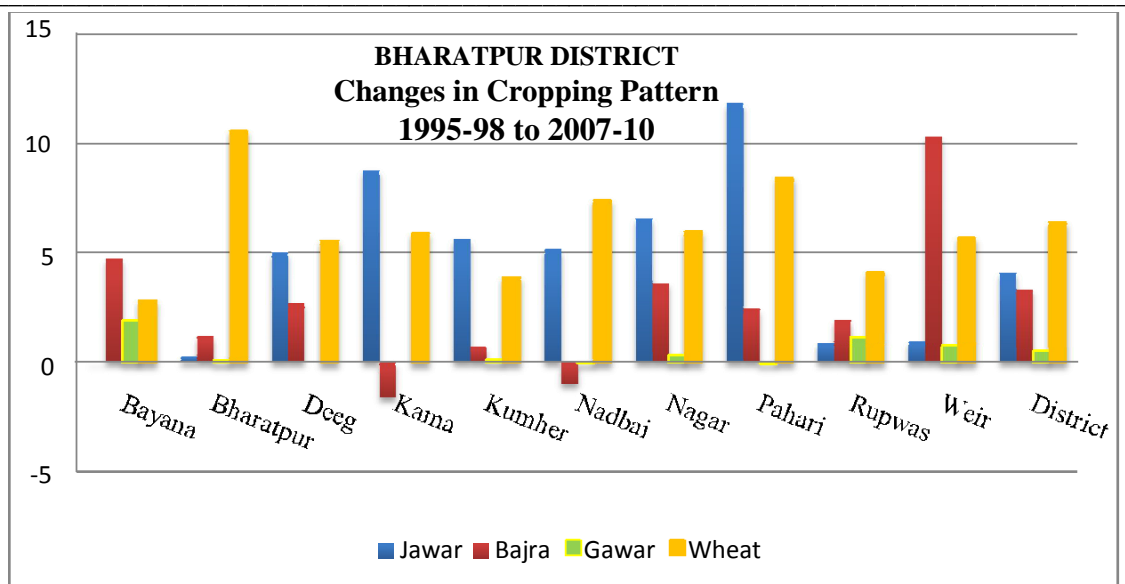
Changes in cropping pattern can be seen during the study period clearly. Jawar, Bajra, Guar wheat and fodder crop have made their presence strongly. In fact, gram and mustard are rabi crops which have reported significant decline in share. Wheat is able to pick up half of this decline in percentage area of other crops. Jawar has reported increase in the share of GCA in all the tehsils but in Pahari tehsil its increase was around 12 percent. Similarly, Kama, Nagar, Kumher and Deeg have noticed more than 5 per cent increases in its share in GCA. Bajra is third most important crop of the district and it has reported an increase of 3.35 percent share in GCA. Except Kama and Nadbai tehsils, it has shown increase in its share in GCA. In Weir tehsil, its increase was exceptionally high.

**Table 1.3: Changes in Cropping Pattern during 1995-98 and 2007-2010**

Tehsils	Jawar	Bajra	Guar	Wheat	Barley	Gram	Mustard	Fodder
Bayana	0.02	4.77	1.94	2.83	0.01	-5.33	-6.48	4.62
Bharatpur	0.26	1.19	0.10	10.59	0.06	-3.81	-18.25	13.34
Deeg	5.03	2.71	0.00	5.57	-0.73	-10.45	-5.35	1.87
Kama	8.79	-1.59	0.00	5.91	-0.83	-6.56	-2.09	1.89
Kumher	5.66	0.72	0.13	3.89	-0.29	-7.57	-5.48	1.17
Nadbai	5.17	-0.99	-0.04	7.42	0.28	-5.48	-11.83	5.36
Nagar	6.60	3.64	0.34	6.00	-0.70	-9.46	2.81	0.46
Pahari	11.86	2.46	-0.05	8.44	-0.73	-7.12	-0.19	0.81
Rupwas	0.89	1.95	1.16	4.14	0.10	-3.00	-9.19	5.74
Weir	0.95	10.34	0.78	5.72	0.12	-3.94	-17.27	4.70
District	4.11	3.35	0.52	6.40	-0.22	-6.08	-7.19	2.66

Source: Calculated from various issues of District Statistical Abstract of Bharatpur District Rajasthan

Guar and Barley has very little shared in GCA but it they also shown significant changes. In Bayana and Rupwas, Guar reported more than 1 percent increase in its share in GCA. Deeg and Kama have noticed no change. However, Nadbai and Pahari has experienced marginal decline. In case of barley, although decline is marginal but it was seen in five tehsils. Wheat has increased its in GCA by 6.40 per cent in the district where Bayana has observed minimum increase and Bharatpur has maximum. Gram and Mustard is biggest losers in the study period. In Deeg, share of gram decreased by more than 10 per cent. Mustard has experienced more than 15 per cent decline in area in Bharatpur and Weir tehsils.



**Fig 1.1: Percentage change in Jawar, Bajra, Guar and Wheat during 1995-98 and 2007-10**

## COCLUSION

It is clear from the Fig 1.1 that Cereals and fodder crops are major gainer whereas pulses and oilseeds have lost its share in cropping pattern. Wheat emerged as major gainer in rabi season. In fact, development of irrigation resulted into more acreage under wheat. This increase can be attributed to decline in the sown area of mustard and gram.

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