



Agricultural Production Scenario Of Rabi Crops In Dausa District From 1991 To 2021

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ABSTRACT

The earth is the third planet from the sun and the only astronomical object known to harbour life. The total agricultural land area over the globe is 4.74 billion hectares(Newton, D. E., 2021). Almost two third of agricultural land i.e., 3.18 billion hectares is under permanent meadows and pastures. One third of total agricultural land is cropland i.e., 56 billion hectares. (Maletta, H. E. 2014).Although if we compare present total agricultural land with year 2000 there is a decrease of 3% i.e., 0.13 billion hectares but there is an increase in cropland is seen.(Strassburg et al., 2014). India's society is one of the world's oldest living civilizations, In India beginning of agricultural practices is believed to be around 9000 B.C. Almost immediately people established life with the implication of practices developed for agricultural (Bowman and Rogan 1999). Mixed farming was the basis of farming in Indus valley civilization (Murphy 2007) irrigation facility was also available in Indus valley civilization. The cultivation of jute was also done in India. At present the number of operational holdings in production the country is estimated at 14.64 crore (Agriculture Census 2015-16). The total food grain in the country is 296.65 million tonnes.

Keywords: Crop Production, Crop Scenario

1. Introduction

Dausa lies in the Semi-arid Eastern plain (III-A) ago-climatic zone along with Jaipur, Ajmer, Tonk where the main Kharif crops are Bajra,Jawar and Rabi crops are wheat, mustard, barley, and gram. Total irrigated area is 148806 hectares. Irrigation intensity of the district is 101%.This research has been done to represent the scenario of agricultural production of irrigated rabi cropsin Dausa district during the year 1991 to 2021.

Keywords: Crop Production, Crop Scenario, Cropping Area.

1.1. Study Area

The Dausa district is in the eastern region of Rajasthan between 26° 22' to 27° 50' northern latitude and 76° 53' to 78° 16' eastern longitude. The geographical area of the district is 3432 square kilometres, accounting for almost 1% of the state total area. The district is drained by three important rivers and the district falls within the three corresponding river basins namely 'Banganga River Basin' in northern part, 'Banas River Basin' in southern part, and 'Gambhir River Basin' in lower eastern part. The climate of Dausa is generally dry and is subject to extremeness of cold and heat at various places. The minimum (3.33 ° C) and maximum (44 ° C) temperatures in the district. Average annual rainfall is 570.3mm over the district.

1.2. Methodology

Methodology is the strategy which is used to accomplish the defined goals. This methodology aims to highlight the methods followed in the study to accomplish the objectives of analysis of crop production.

Data Use:

Average Crop production data have been used for the analysis of change in irrigated rabi crop production. Crop production data have been acquired from the Land Record Section, District Collectorate of Dausa. These data have been used for the district level analysis and crop wise analysis for the years 1991 to 2021. However, only the major crops (Wheat, Barley, Gram, and Mustard) data have been used in the current study due to fact that more than 90% production in rabi season comes from these four crops.

Method

Crop production Analysis

Crop production data of Dausa district for the years 1991 to 2021 was collected and analysis was done for observing the temporal change in average crop production. The analysis of production data has been also done crop wise at district level. The crop production data were averaged for the five times period i.e., 1991, 1996, 2001, 2009, 2016 and 2021. With the help of suitable bar diagrams the average crop production is shown crop wise for the last three decades. The district level average crop production has been analysed using equation mentioned below.

$$A = \frac{1}{n} \sum_{i=1}^n a_i$$

A = Arithmetic Mean

n= Number of Value

a_i = Data set Value

Result and Discussion

1.1.Irrigated crop production

As stated earlier in the segment, we analysed the change in irrigated average crop production for the crops like wheat, mustard, barley, and gram.

3.2.1. Temporal Analysis of Crop Production in Dausa District

This study presents a temporal analysis of irrigated crop production in the Dausa district. Spanning from 1991 to 2021, the data showcases the changing trends and fluctuations in crop production over the years. The analysis provides insights into the average production quantities, highlighting notable peaks and declines, and explores a trend of change .

Table:1 Average Crop Production (MT)

Year	Average Production (MT)
1991	54688
1996	67547
2001	89585
2009	94399
2016	113636
2021	98083

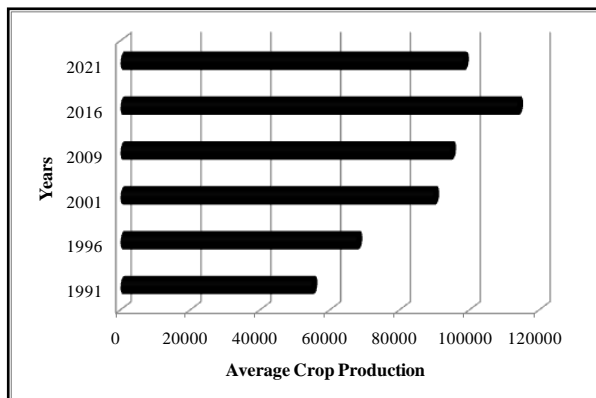


Figure:1 Average Crop Production (MT)

In 1991, the average production stood at 54,688 metric tons (MT), gradually increasing to 67,547 MT. Subsequently, in 2001, the production further rose to 89,585 MT, reaching a peak in 2016 at an all-time high of 113,636 MT. However, in 2021, a decline is observed with a production of 98,083 MT, which is slightly lower than the production recorded in 2009 (94,399 MT).

3.2.2 Crop Wise Production and Area Variation in Dausa District

This analysis focuses on the major crops, namely wheat, barley, gram, and mustard, which contribute significantly to agriculture production in the Dausa district. Table: 2 representing the wheat production of 164,729 MT. Subsequently, in 2001, with 94,995 hac under cultivation, the production further increased to 242,231 MT. Despite a decrease in cultivation



area to 84,913 hac in 2009, the production remained higher than in 2001 at 263,538 MT. The peak of wheat cultivation in the district occurred in 2016, with an area of 99,611 hac and an all-time high production of 348,408 MT. However, in 2021, the cultivation area decreased to 66,518 hac, while the production remained exceptional at 289,248 MT (Figure: 2a).

Barley production of 17,551 metric tons (MT). However, in 1996, both the cultivation area and production witnessed a significant decrease, with the area shrinking to 4,792 hac and the production falling to 8,664 MT. Subsequently, in 2001, there was a notable increase in both area and production, with the cultivation area expanding to 8,366 hac and the production reaching 12,637 MT. Notably, in 2009, despite a slight decline in the cultivation area to 7,657 hac, there was a remarkable growth in production, which amounted to 14,997 MT. In 2016, the cultivation area decreased further to 6,372 hac, while the production continued to rise, reaching 15,512 MT. However, in the latest year of 2021, the barley cultivation area hit an all-time low at 3,275 hac, resulting in a production of 12,275 MT (Figure: 2b).

Gram production of 4,219 metric tons (MT). Over time, the cultivation area expanded to 6,108 hac in 1996, leading to a higher production of 8,862 MT. By 2001, the cultivation area further increased to 7,398 hac, marking a significant milestone with an all-time high production of 16,384 MT. However, in 2009, both the area and production declined to 1,689 hac and 2,453 MT, respectively. Subsequently, in 2016, the cultivation area increased to 3,635 hac, resulting in a production increase of 5,085 MT. As of 2021, gram cultivation covered an area of 6,745 hac, yielding a production of 11,004 MT (Figure: 2c).

Mustard yielding a production of 50,454 metric tons (MT). However, in 1996, the cultivation area hit an all-time low at 38,671 hac, while the production remained high at 87,931 MT. By 2001, the area under cultivation increased to 48,400 hac, resulting in a production of 87,087 MT. Notably, in 2009, mustard cultivation reached its peak with 60,578 hac, accompanied by the highest production recorded at 96,607 MT. Subsequently, the cultivation area decreased to 48,686 hac in 2016, while the production stood at 85,539 MT. In the latest year of 2021, the area further declined to 39,620 hac, yielding a production of 79,806 MT (Figure: 2d).

Table:2 Crop Production (MT) and Area (hac) Variation in Dausa District (1991-2021)

Year	Wheat		Barley		Gram		Mustard	
	Area (hac)	Production (MT)	Area (hac)	Production (MT)	Area (hac)	Production (MT)	Area (hac)	Production (MT)
1991	63868	146529	9708	17551	2352	4219	44089	50454
1996	77131	164729	4792	8664	6108	8862	38671	87931
2001	94995	242231	8366	12637	7398	16384	48400	87087
2009	84913	263538	7657	14997	1689	2453	60578	96607
2016	99611	348408	6372	15512	3635	5085	48686	85539
2021	66518	289248	3275	12275	6745	11004	39620	79806

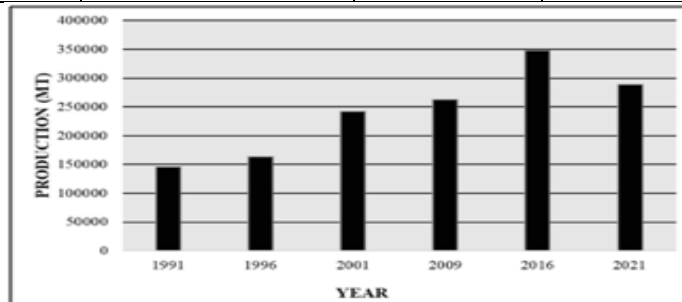


Figure: 2a Temporal Wheat production (MT)

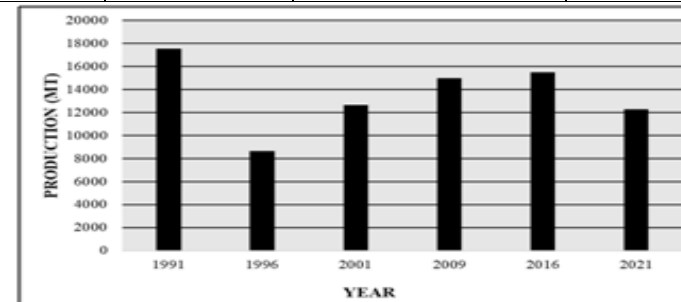


Figure: 2b Temporal Barley production (MT)

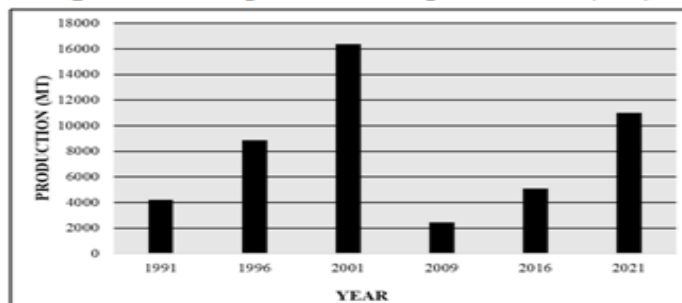


Figure: 2c Temporal Gram production (MT)

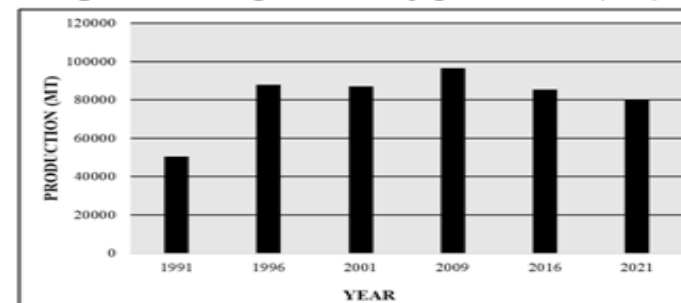


Figure: 2d Temporal Mustard production (MT)



Conclusion

In conclusion we see the total average production scenario of the district for last three decades we find that there is a continuous increase has seen till the year 2021. Although the rate of increase is different. Only exception is the year 2021 in which a decrease in total average production has seen it may be because of corona pandemic. If we see the other dimension that is change in production crop wise then a different trend is observed. The peak of production of all four crops occurs at different time. All the three crops except wheat does not show any trend. Wheat is the only crops which shows a continuous increase in total production till the year 2021. The continuous rise the production and area of wheat crop till the year 2021 proves that this is the staple crop of the district.

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