

## COMPARATIVE STUDY OF RAINY DAYS AND CROP RAINY DAYS IN SATARA DISTRICT OF MAHARASHTRA

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### ABSTRACT

*The rainfall and rainy days are important for the crop growing. The amount of rainfall equal or exceed 5 mm is require for any crops. The studies of Crop rainy days are provide better information of irrigation requirement of crops. The number of crop rainy days are affected the production and yields of monsoon based crops. In the present study, comparatively investigate the ratio of rainy day and crop rainy days of Satara district during the period of 1983 -2012. The western part of the Satara district shows the above 0.85 ratio of CRD/RD, the central and northeast part of the district shows 0.80 to 0.85 ratio and south and southeast part shows below 0.75 ratio of CRD/RD.*

**KEYWORDS:** Crop rainy day, Rainy day, monsoon, agriculture

### INTRODUCTION

The identification of CRD is required for parameterization of the natural availability of rainfall for the agriculture. The ratio of CRD and RD will provide information of difference of the availability rainfall. This ratio is helpful for the preparation of irrigation schedule, analysis of soil moisture and investigation of crop productivity. In this research paper, the ratio of crop rainy days and rainy days of Satara district is discussed. Satara district is located in the western part of Maharashtra. The Geographical location of Satara is 17° 5' to 18° 11' North & 73° 33' to 74° 54' East. It is bounded by Pune district to the north, Solapur district to the east, Sangli district to the south, Ratnagiri district to the west and Raigad district lies to its north-west direction. Satara district is situated in the river basins of the Bhima and Krishna. The physical setting of Satara show a contrast of immense dimensions and reveals a variety of landscapes influenced by relief, climate, vegetation and agricultural activity.

Agriculture is the major primary activity of Satara district. It is classified into two main seasons; Kharif and Rabi. The Kharif agriculture season is from June to mid of October during the periods of southwest monsoon season and the Rabi agriculture season is from mid October to February during the post monsoon and cold seasons. Some parts of the district grow crops during summer season. The climatic variability of the district affected the agriculture production. The high frequency of drought is increased in the eastern part of the district (Khandala, Phaltan, Man, Khatav and Koregaon tahsils) during the last few decades. The rainfall distributions during crop sowing period have also become responsible for the reduction of agricultural production. Some historical evidence of the district shows the agriculture production is mainly depending on the annual rainfall.

### DATA AND METHODOLOGY

The daily rainfall data of 27 stations in the Satara district from 1983-2012 is considered for the analysis of crop rainy days. The rainy days (RD) considered the rainfall amount equaled or exceed 2.5 mm, whereas the crop rainy days considered the amount of

rainfall equaled or above 5 mm. The numbers of Crop Rainy Days are divided by the Rainy days for the calculation of ratio of CRD and RD. The ratio of CRD and RD are presented in IDW maps.

### CROP RAINY DAYS

The annual and seasonal ratio of CRD and RD for the corresponding station has been represented in the Figure -1. Figure 1 (A) indicated the annual ratio of CRD/RD over the study area. The highest ratio of CRD/RD is observed Gureghar (0.96), while the lowest at Targaon (0.65) station. The western part of the district shows the above 0.85 ratio of CRD/RD, the central and northeast part of the district shows 0.80 to 0.85 ratio and south and south-east part shows below 0.75 ratio of CRD/RD.

**Table -1**  
**Ratio of Crop rainy days and Rainy days**

Sr. No	Station	HS	SW	PM	CS	Annual
1.	Ambale	0.78	0.76	0.81	0.69	0.77
2.	Ambavade1	0.83	0.71	0.71	1.00	0.71
3.	Ambavade2	0.70	0.68	0.78	0.76	0.70
4.	Andhali	0.71	0.85	0.91	0.92	0.85
5.	Belwade	0.76	0.79	0.78	0.91	0.79
6.	Davari	0.88	0.88	0.87	1.00	0.88
7.	Goregaon Wangi	0.84	0.82	0.90	0.88	0.83
8.	Gudhe	0.79	0.74	0.83	0.69	0.76
9.	Gureghar	0.93	0.96	0.91	1.00	0.96
10.	Jawalwadi	0.89	0.81	0.91	0.86	0.83
11.	Kas	0.78	0.92	0.81	0.78	0.91
12.	Keral	0.87	0.87	0.84	1.00	0.87
13.	Mahabaleshwar	0.94	0.93	0.83	1.00	0.92
14.	Marali	0.91	0.92	0.93	1.00	0.92
15.	Mendh	0.91	0.84	0.85	0.90	0.85
16.	Nagewadi	0.77	0.92	0.91	0.86	0.92
17.	Nagthane	0.74	0.79	0.82	0.95	0.79
18.	Padloshi	0.72	0.81	0.80	0.67	0.80
19.	Parali	0.72	0.81	0.80	0.67	0.80
20.	Sandavali	0.82	0.91	0.89	0.91	0.90
21.	Shivade	0.66	0.70	0.75	0.72	0.70
22.	Targaon	0.67	0.62	0.75	0.83	0.65
23.	Thoseghar	0.84	0.94	0.95	0.86	0.94
24.	Upshinge	0.82	0.88	0.87	0.85	0.88
25.	Wathar	0.80	0.73	0.77	0.48	0.74
26.	Wathar Station	0.77	0.74	0.86	1.00	0.76
27.	Yelgaon	0.88	0.83	0.85	0.57	0.83

Source – Compiled by researcher

In the southwest monsoon season, the ratio of CRD/RD is shown in Figure 1 (B). Mostly southwest monsoon season contribute 89.1 percent of the total of annual rainfall, so the ratio of CRD/RD is similar to the annual. The ratio of in this season ranges 0.62 to 0.96.

During the post monsoon season, the ratio of CRD/RD ranges from 0.71 to 0.95 (Figure 1 C). The northern, north-central, north-east and western part of the district shows above 0.85, the central, north-west, south-central and south-east part of the district shows 0.80 to 0.85 ratio of CRD/RD, while the south part of shows below 0.80 ratio of CRD/RD.

Figure 1 (D) shows the ratio of CRD/RD in the cold season. The ratio of CRD/RD ranges from 0.48 to 1. The southern part of the district shows below 0.50 ratio of CRD/RD. Most of the part of the district shows above 0.80 ratio.

The ratio of CRD/RD of the hot season is depicted in the Figure 1 (E); it ranges from 0.66 to 0.94. The highest ratio of (0.85) CRD/RD is observed in the south-west and north-west part of the district, while below 0.70 is observed in the eastern part. The central part indicated ratio of 0.75 to 0.85 CRD/RD.

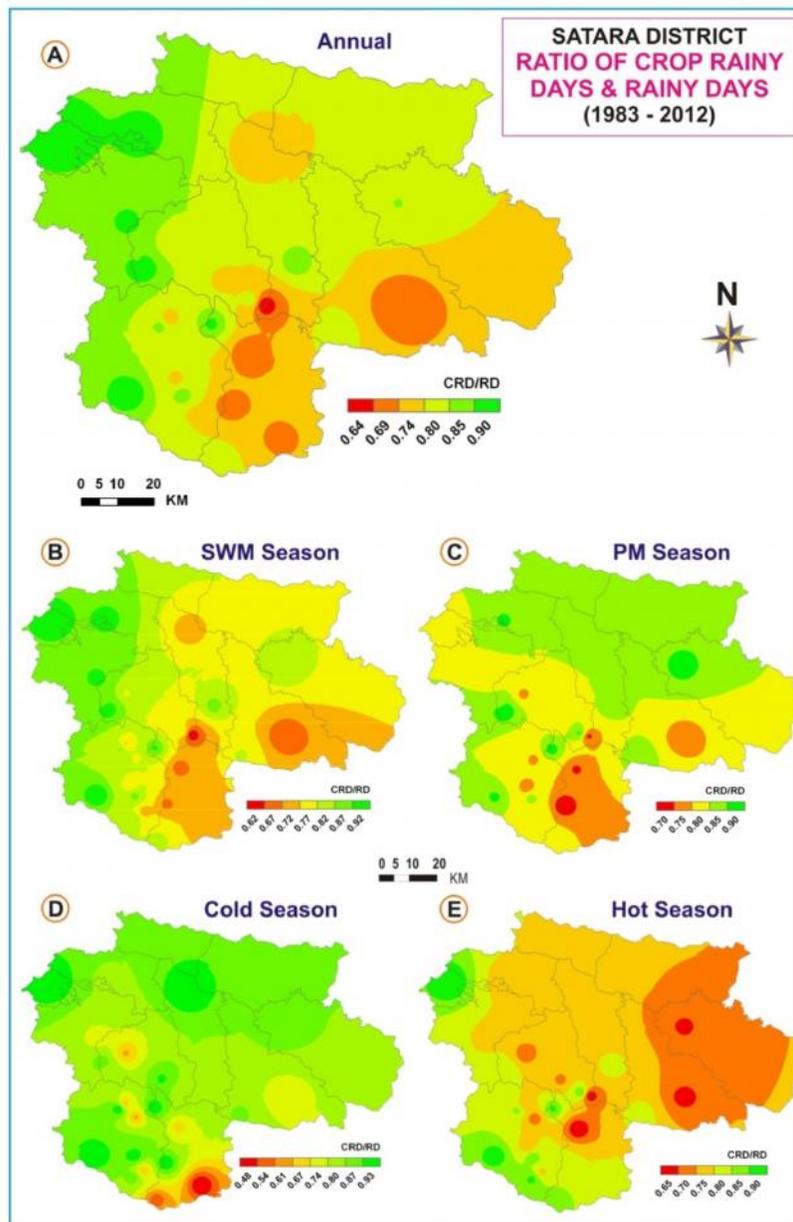
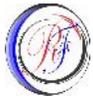


Fig. 1



## CONCLUSION

The identification of crop rainy days is required for parameterize of the natural availability of rainfall for the agriculture. The ratio of crop rainy days and rainy days will provide information of difference of the availability rainfall. This ratio is helpful for the preparation of irrigation schedule, analysis of soil moisture and investigation crop productivity. The western part of the district shows the above 0.85 ratio of CRD/RD, the central and north-east part of the district shows 0.80 to 0.85 ratio and south and south-east part shows below 0.75 ratio of CRD/RD.

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