

WEATHER VARIABILITY IMPACTING THE PRODUCTIVITY OF RICE, WHEAT AND SUGARCANE IN NORTH WEST INDIA

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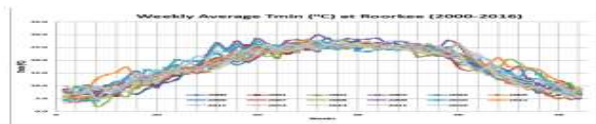
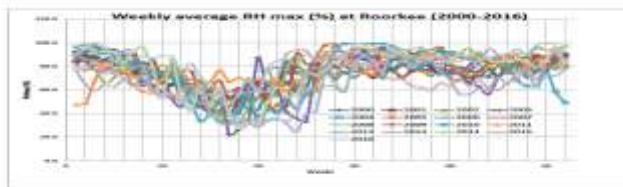
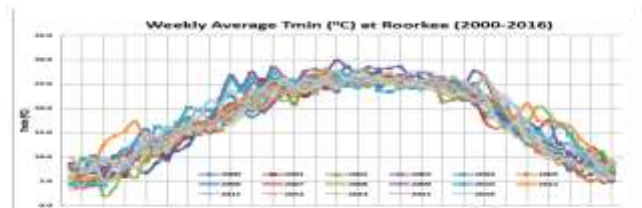
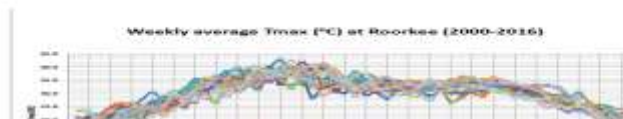
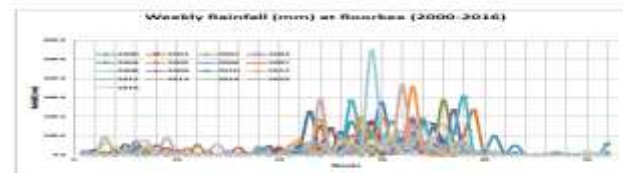
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Weather condition of Haridwar District (India) records considerable fluctuation during May-June; September-October and February-March which in turn encouraged the insect pest and disease attack on sugarcane, rice and wheat crops. This resulted into reducing the yield and increasing the cost of cultivation and is a cause of great concern to the farmers.

Daily weather data (rainfall, maximum temperature, minimum temperature, maximum humidity) for the period 2000- 2016 was collected from the Agromet Observatory of the, Indian Institute of Technology Roorkee and converted into weekly. Area (A), production (P) and Yield (Y) of rice, wheat and sugarcane for the same period was collected from the Directorate of Agriculture Uttarakhand.

Step wise regression model was quite sensitive to weekly weather fluctuations on the yield of rice (rainfall and maximum humidity), wheat (rainfall and minimum temperature) and sugarcane (rainfall and minimum humidity).



Year	Yield (kg/ha) Haridwar District		
	Rice (25 th 4 th Week)	Wheat (1 st 4 th Week)	S. Cane (1 st 4 th Week)
2000-01	2332	2575	28384
2001-02	2418	2575	28384
2002-03	2418	2438	24768
2003-04	2172	2275	21360
2004-05	2235	2287	22110
2005-06	2285	2287	22110
2006-07	2175	2287	22110
2007-08	2253	2287	22110
2008-09	2168	2287	22110
2009-10	2242	2287	22110
2010-11	2287	2287	22110
2011-12	2180	2287	22110
2012-13	2238	2287	22110
2013-14	2172	2287	22110
2014-15	2287	2287	22110
2015-16	2287	2287	22110
2016-17	245	245	245

Yield of rice, wheat and sugarcane was also predicted using DSSAT but the results obtained were statistically not different.