

INFLUENCE OF WEATHER PARAMETERS ON YIELD AND YIELD
ATTRIBUTES OF WHEAT (*Triticum aestivum* L.)

Presented by

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INTRODUCTION

MATERIALS AND METHODS

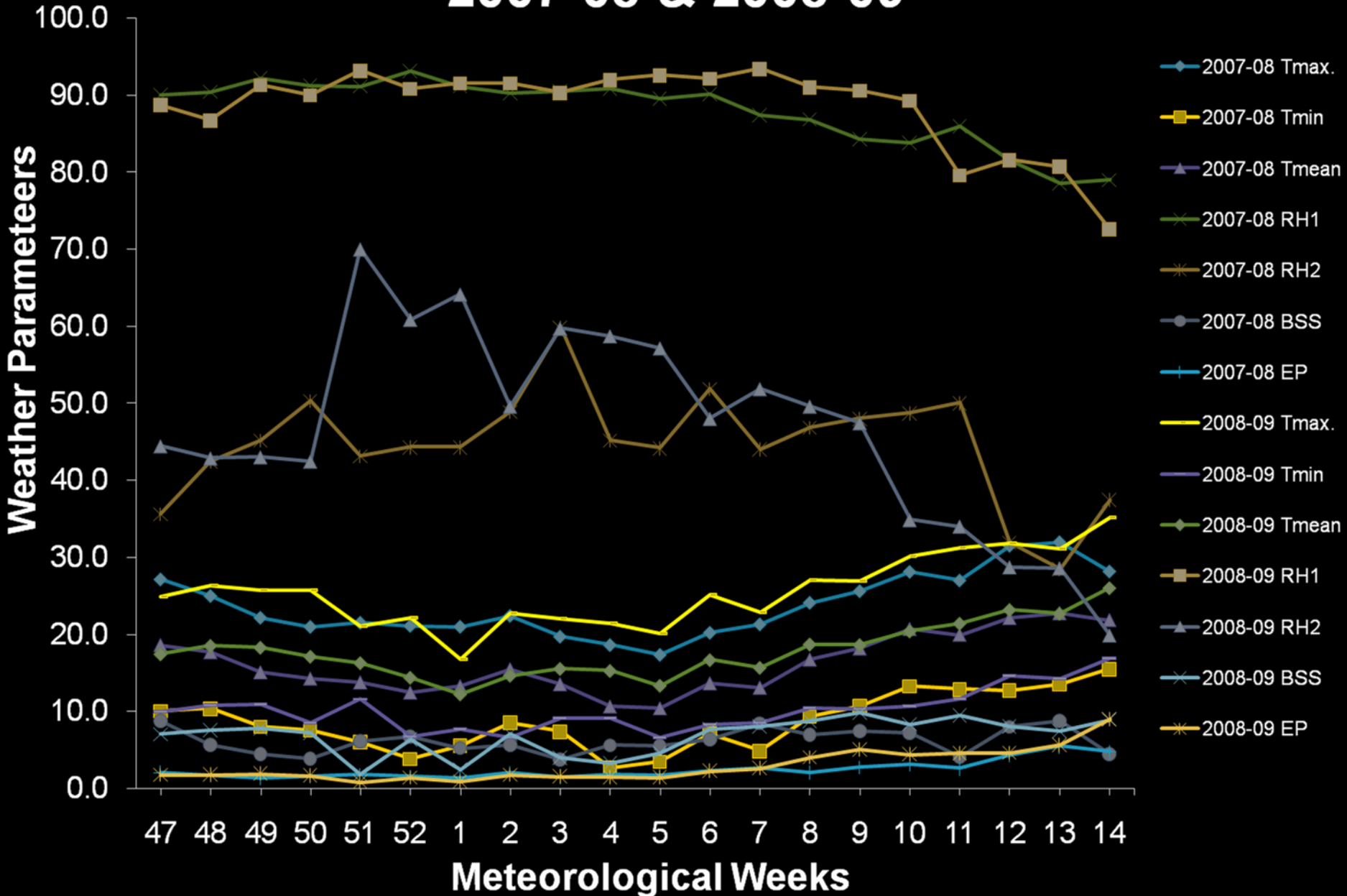
- Crop : Wheat
- Genotype : PBW-343 and WH-542
- Year of the study : 2007-08 and 2008-09
- Place : CRC Pantnagar(Uttarakhand)
- Location : 29° N lat., 79.3° E long. and at an alt. of 243.8 m m.s.l.
- Replications : Three
- Soil : silty clay loam
- Design used : split-plot design (SPD).

- ◎ **Weather parameters used :**

Tmax, Tmin, Tmean, RH I, RH II, BSS and EP

- ◎ **Purpose of study :** To quantify the influence of weather parameters on yield & yield attributes of wheat crop, simple correlations were developed between weather parameters and the resultant yield & yield attributing characters to affect the qualitative relationship between them.

Weather conditions during wheat period of 2007-08 & 2008-09





EXPERIMENTAL FINDINGS

Abbreviation used

Tmax : Maximum temperature

Tmin : Minimum temperature

Tmean : Mean temperature

RH1 : Relative humidity at 0720 hrs

RH2 : Relative humidity at 1420 hrs

BSS : Bright sunshine

EP : Evaporation

* : Significant at 0.05 P

Correlation coefficient between weather parameters and Number of tiller m⁻² of wheat (2007-08 & 2008-09)

Weather parameters	Number of tiller m ⁻²	
	PBW-343	WH-542
Tmax	-0.84*	-0.93*
Tmin	-0.83*	-0.92*
Tmean	-0.84*	-0.92*
RH 1	0.76	0.72
RH 2	0.68	0.67
BSS hours	-0.82*	-0.82*
EP	-0.90*	-0.95*

Correlation coefficient between weather parameters and Number of spikes plant⁻¹ of wheat (2007-08 & 2008-09)

Weather parameters	Number of spikes plant ⁻¹	
	PBW-343	WH-542
Tmax	-0.86*	-0.89*
Tmin	-0.87*	-0.90*
Tmean	-0.87*	-0.90*
RH 1	0.73	0.70
RH 2	0.62	0.60
BSS hours	-0.84*	-0.88*
EP	-0.90*	-0.92*

Correlation coefficient between weather parameters and Number of spikelets spike⁻¹ of wheat (2007-08 & 2008-09)

Weather parameters	Number of spikelets spike ⁻¹	
	PBW-343	WH-542
Tmax	-0.88*	-0.96*
Tmin	-0.86*	-0.91*
Tmean	-0.88*	-0.94*
RH 1	0.91*	0.82*
RH 2	0.85*	0.84*
BSS hours	-0.86*	-0.96*
EP	-0.95*	-0.99*

Correlation coefficient between weather parameters and Test Weight (g) of wheat (2007-08 & 2008-09)

Weather parameters	Test Weight (g)	
	PBW-343	WH-542
Tmax	-0.97*	-0.94*
Tmin	-0.96*	-0.94*
Tmean	-0.97*	-0.94*
RH 1	0.84*	0.84*
RH 2	0.78	0.76
BSS hours	-0.95*	-0.91*
EP	-0.98*	-0.97*

Correlation coefficient between weather parameters and Wheat Yield (kg/ha) of wheat (2007-08 & 2008-09)

Weather parameters	Wheat Yield (kg/ha)	
	PBW-343	WH-542
Tmax	-0.97*	-0.97*
Tmin	-0.96*	-0.96*
Tmean	-0.97*	-0.97*
RH 1	0.76	0.74
RH 2	0.71	0.68
BSS hours	-0.95*	-0.95*
EP	-0.98*	-0.98*

CONCLUSION

- Maximum temperature (T_{max}), minimum temperature (T_{min}) and mean temperature (T_{mean}) showed negative correlation for all the yield attributing characters i.e. Number of tiller/m², Number of spikes/plant, Number of spikelets/spike, Test Weight (g) and Yield (kg/ha).
- WH-542 was more negatively correlated than PBW-343 for all the yield attributes in case of T_{max} , T_{min} and T_{mean} .
- WH-542 was also found strong negative correlation in case of yield (kg/ha) followed by PBW-343 for T_{max} , T_{min} and T_{mean} .
- Maximum relative humidity (RH I) and minimum relative humidity (RH II) were found to be positive correlation with all the yield attributing characters.

- ◎ RH I had strong correlation with Number of spikelet's/spike in case of PBW-343 followed by WH-542.
- ◎ In case of both RH I and RH II, PBW-343 was found to be strongly correlated than WH-542 for all the yield attributes.
- ◎ All the yield attributing characters were negatively correlated with bright sunshine hours (BSS). Similar result was found in case of evaporation (EP).
- ◎ WH-542 was more negatively correlated than PBW-343 for all the yield attributes in case of both BSS and evaporation.



Thank You