Original Research Article

INFLUENCE OF WEATHER PARAMETERS ON GUAVA SCAB CAUSED BY *Pestalotiopsis psidii*

ABSTARCT

Guava (*Psidium guajava*) is an important tropical fruit crop of India and is known as “apple of the tropics”. It is grown and utilized as an important fruit in tropical countries like India, Indonesia, Pakistan, Bangladesh and South America. Among the various diseases, guava infected by scab disease [*Pestalotiopsis psidii* (Pat.) Mordue] is an economically important and known to cause yield loss of 12-18%. An experiment was conducted during 2023 at Horticulture garden, MARS, UAS, Raichur during 2023 to understand the influence of various weather parameters on the guava scab disease development. The results revealed that, irrespective of the varieties, interaction among maximum temperature, minimum temperature, maximum relative humidity, minimum relative humidity, rainy days and rainfall showed significant positive correlation with guava scab disease.

Keywords*: Guava, epidemiology, temperature, relative humidity, rainfall, Pestalotiopsis psidii.*

1. INTRODUCTION

Guava (*Psidium guajava*) is an important fruit crop of India that belongs to the genus *Psidium* and family Myrtaceae [1]. The crop was originated from Tropical America or the Mexico [2] or the Brazil. It is known as “apple of the tropics”. Globally, the production of guava is 55 million tonnes. Guava has been grown and utilized as an important fruit in tropical countries like India, Indonesia, Pakistan, Bangladesh and South America [3]. The total area under guava cultivation in India is around 358.82 thousand hectares with annual production of 5.59 million tonnes. In Karnataka, area under guava cultivation is 8.10 thousand ha with production of 0.16 mt [4]. It has gained considerable prominence an account of its high nutritive value, availability at moderate prices, pleasant aroma and good flavor. It is the fifth most widely grown fruit crop of India [3]. Several biotic and abiotic factors affect the growth and yield of guava. Among the biotic factors, diseases are the most important causing major losses in the guava. Scabby fruit canker caused by *Pestalotiopsis* spp. is one of the most common fruit diseases in guava growing areas and appears at all developmental stages of guava fruit. Scaby canker caused by *Pestalotiopsis* spp. was reported in India and cause drastic reduction of qualitative and quantitative yield in the fields during the pre-harvest stage and can also lead to fruit losses during post-harvest storage [5]. A study was undertaken to observe impact of weather conditions on the development of scab disease of guava. An understanding of the role of environmental factors and their consequences on infection, development and spread of the pathogen or diseases are required to develop sustainable disease management practices. Keeping in view all of the above points, present

investigation was planned and conducted to understand the influence of various weather parameters on guava scab at Horticulture garden, Raichur during 2022-23.

2. MATERIALS AND METHODS

To study the effect of different weather parameters on the development of guava scab disease, an experiment was conducted in the Horticulture garden, Main agricultural research station, University of Agricultural Sciences, Raichur. Ten guava plants, each from three varieties of guava (Allahabad Safed, Lucknow 49 and Arka Kiran) were selected randomly and tagged in the orchard of Department of Horticulture. From each plant, four branches were selected and in each branch five fruits were selected and tagged. Disease development was monitored at weekly intervals and disease severity was recorded using the 1-4 scale given by [5] and per cent disease index (PDI) was calculated. The data of Standard Meteorological week pertaining to maximum and minimum temperature, relative humidity (maximum and minimum), amount of rainfall, number of rainy days and sunshine hours were collected from Meteorological Divison, Main Agricultural Research Station, (MARS), Raichur. Correlation co-efficient between disease incidence or disease severity with different weather parameters were determined by Karl Pearson's formula and tested individually for their significance at 5 per cent probability level using following formula. At the end of the experiment weather parameters which are favourable for disease development can be known.

$$t = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

Where,

t = test of significance
r = correlation co-efficient
n = number of observations

The rate of disease development/ unit / day was estimated according to the method given by [6]. The apparent infection rate (r) for total period was calculated by using following formula,

$$r = \frac{1}{t_2 - t_1} \log_e \frac{X_2 (1 - X_1)}{X_1 (1 - X_2)}$$

Where,

r = rate of disease development
t_1 = date of first observation
t_2 = date of second observation
X_1= disease severity on first observation
X_2 = disease severity on second observation

Disease incidence was also calculated using the formula given below

$$\text{Disease Incidence (\%)} = \frac{\text{Number of fruits infected}}{\text{Total number of fruits observed}} \times 100$$

3. RESULTS AND DISCUSSION

Influence of weather parameters on guava scab disease severity on Allahabad Safed variety: The initial guava scab symptoms appeared on 49th standard meteorological on the variety Allahabad Safed (2.50 % PDI) and incidence of 1.76 per cent gradually increased week by week until the end of fruit bearing season. Maximum severity (56.00 %) and incidence (23.21 %) was recorded in the first week of March (10th SMW) 2023 (Table 1 & Fig. 1). Correlation coefficient study presented in table 4 revealed that, as individual parameters maximum temperature (0.587) and sunshine hours (0.753) has positive significant correlation with guava scab disease development. Whereas, minimum temperature (0.023) was non-significant with positive effect. Rainfall (− 0.377), rainy day (− 0.377), maximum relative humidity (− 0.482) were non-significant and had negative effect with disease. As the temperature increases, relative humidity reduces and that may not be suitable for disease development, hence it showed negative correlation. Whereas interaction of sunshine hours with minimum temperature (− 0.419), rainfall (− 0.646), rainy day (− 0.679) and minimum relative humidity (− 0.853) have showed negative significant correlation with the disease development of guava scab. Because of increase in sunshine hours quick evaporation of morning dew and decrease in relative humidity were not favourable for disease development. The multiple linear regression of PDI of guava scab (Allahabad Safed variety) in relation to weather parameters during 2022-23 indicated that, the regression coefficients for maximum temperature (X_1), minimum temperature (X_2), rainfall (X_3), rainy day (X_4), morning relative humidity (X_5), evening relative humidity (X_6) and sunshine hours (X_8) were found to be 0.045, 5.563, 0.060, 0.060, − 0.133, − 0.216 and 9.481 respectively. The multiple linear regression equation was fitted to the data and the equation arrived for the weather parameters is Y = 122.870 + 0.045 X_1 + 5. 563X_2 + 0.060 X_3 + 0.060 X_4 – 0.133 X_5 − 0.216 X_6 + 9.481X_7 (Table 5). This analysis showed that, when there was increase in one unit of maximum temperature, minimum temperature, rainfall, rainy day and sunshine hours, the per cent disease severity was increased by 0.045, 5.563, 0.060, 0.060 and 9.481 units. Whereas increase in one unit of morning relative humidity and evening relative humidity, the per cent disease severity was decreased by 0.133 and 0.216 units, respectively.

Influence of weather parameters on guava scab disease severity on Lucknow 49 variety: In Lucknow 49 variety, the first onset of symptom was noticed during 19th November to 25th November with the disease severity of 3.50 and incidence of 1.21 (47th SMW). Over a period of time, per cent disease index (PDI) reached peak of 68.50 and incidence of 32.45 per cent at 8th SMW due to congenial weather conditions (Table 2 and fig. 2). The results showed that, the disease development has positive correlation co-efficient with individual parameters such as, maximum temperature (0.533) and sunshine hours (0.795) but has significant negative correlation co-efficient with minimum relative humidity (− 0.707) (Table 6). Among the interaction between different weather parameters, the

positive significant correlation was recorded by maximum temperature and sunshine hours (0.624), rainfall and rainy days (1.000), minimum relative humidity and rainfall (0.691), minimum relative humidity and rainy days (0.680) and minimum relative humidity and sunshine hours (0.904). The interaction of maximum temperature with rainfall (− 0.565), rainy days (− 0.551), maximum relative humidity (− 0.520) and minimum relative humidity (− 0.602) sunshine hours with rainfall (− 0.567) and rainy day (− 0.556) showed significant negative correlation with guava scab. The multiple linear regression of PDI of guava scab on Lucknow 49 variety in relation to weather parameters during 2022-23 indicated that, the regression coefficients for maximum temperature (X_1), minimum temperature (X_2), rainfall (X_3), rainy day (X_4), morning relative humidity (X_5), evening relative humidity (X_6) and sunshine hours (X_8) were found to be 0.016, 0.273, 0.313, 0.312, 0.117, − 0.068 and 10.505 respectively. The multiple linear regression equation was fitted to the data and the equation arrived for the weather parameters is $Y = 24.918 + 0.016\ X_1 + 0.273X_2 + 0.313\ X_3 + 0.312X_4 + 0.117X_5 - 0.068\ X_6 + 10.505X_7$ (Table 7). This analysis showed that, when there was increase in one unit of maximum temperature, minimum temperature, rainfall, rainy day, morning relative humidity and sunshine hours, the per cent disease severity was increased by 0.016, 0.273, 0.313, 0.312, 0.117 and 10.505 units respectively. Whereas increase in one unit of evening relative humidity, the per cent disease severity was decreased by 0.068 units.

Influence of weather parameters on guava scab disease severity on Arka Kiran variety: The first symptoms were observed on the Arka Kiran variety at 4th SMW (22nd January) with disease severity of 4.50 PDI and incidence of 2.91 per cent, the disease progressed and reached maximum at 12th SMW (19th March to 25th March) with severity and incidence of 74.51 and 85.00 per cent respectively (Table 3 & Fig. 3). The data on correlation of weather parameters revealed that, there was a significant positive correlation between individual parameters such as, maximum temperature (0.736), minimum temperature (0.643) per cent disease severity. Other parameters such as rainfall (0.432), rainy day (0.487) also had a positive correlation with disease development. However, the interaction between minimum temperature and maximum temperature (0.823), minimum temperature and rainy day (0.816), rainfall and rainy day (0.867) and maximum and minimum relative humidity (0.886) had a significant positive correlation with the disease development and the interaction between minimum relative humidity and maximum temperature (− 0.711) had a significant negative correlation with the disease development (Table 8).The multiple linear regression of PDI of guava scab on Arka Kiran variety in relation to weather parameters during 2022-23 indicated that, the regression coefficients for maximum temperature (X_1), minimum temperature (X_2), rainfall (X_3), rainy day (X_4), morning relative humidity (X_5), evening relative humidity (X_6) and sunshine hours (X_8) were found to be 12.233, 0.096, 0.127, 0.114, 0.038, + 0.062 and − 0.215 respectively. The multiple linear regression equation was fitted to the data and the equation arrived for the weather parameters is $Y = 355.084 + 12.233\ X_1 + 0.096X_2 + 0.127\ X_3 + 0.114X_4 + 0.038X_5 + 0.062X_6 - 0.215$ (Table 9). This analysis showed that, when there was increase in one unit of maximum temperature, minimum temperature, rainfall, rainy day, morning relative humidity and evening relative humidity, the per cent disease severity was increased by 12.233, 0.096, 0.127, 0.114, 0.038 and 0.062 units. Whereas increase in one unit of sunshine hours, the per cent disease severity was decreased by 0.215 units.

Table 1. Progression of guava scab in relation to weather parameters on Allahabad Safed variety

Sl. No.	SMW	Date	Temp. (^{0}C)		RH (%)		Rainfall (mm)	Rainy days	Sunshine hours	Severity (%)	Incidence (%)
			Max.	Min.	Max.	Min.					
1.	47	19.11.2022- 25.11.2022	29.20	17.63	78.43	47.43	0.06	0.00	3.89	0.00	0.00
2.	48	26.11.2022 - 02.12.2022	31.00	17.80	72.71	47.14	0.00	0.00	5.23	0.00	0.00
3.	49	03.12.2022 - 09.12.2022	30.74	17.14	71.14	37.57	0.00	0.00	4.16	2.50	1.76
4.	50	10.12.2022- 16.12.2022	28.71	18.94	85.00	59.29	1.91	0.43	2.31	6.50	3.09
5.	51	17.12.2022 - 23.12.2022	30.97	15.23	84.57	35.86	0.00	0.00	6.06	11.50	3.98
6.	52	24.12.2023-31-12-2023	31.55	18.20	83.63	41.75	0.00	0.00	6.26	22.50	12.38
7.	1	01.01.2023 – 07.01.2023	30.66	18.86	82.00	41.00	0.00	0.00	4.87	35.50	17.25
8.	2	08.01.2023 – 14. 01.2023	30.31	13.17	74.00	25.29	0.00	0.00	8.39	37.00	18.14
9.	3	15.01.2023-21.01.2023	31.06	16.00	75.57	29.43	0.00	0.00	9.24	40.00	18.14
10.	4	22.01.2023 – 28.01.2023	30.43	17.49	77.71	31.14	0.00	0.00	7.94	44.00	19.46
11.	5	29.01.2023 – 04.02.2023	31.34	17.17	76.29	35.00	0.00	0.00	6.81	47.50	19.75
12.	6	05. 02.2023-11. 02.2023	33.49	18.31	68.29	29.29	0.00	0.00	8.26	51.50	20.21
13.	7	12. 02.2023-18.02.2023	31.26	17.03	76.78	33.27	0.00	0.00	7.40	52.50	20.21
14.	8	19.02.2023 – 25.02.2023	31.22	16.86	75.81	32.06	0.00	0.00	7.56	55.00	21.00
15.	9	26.02.2023 – 04.03.2023	34.60	18.09	53.14	21.71	0.00	0.00	8.01	56.00	22.64
16.	10	05.03.2023-11.03.2023	34.66	18.54	51.00	23.14	0.00	0.00	7.37	56.00	23.21

Table 2. Progression of guava scab disease in relation to weather parameters on Lucknow 49 variety

Sl. No.	SMW	Date	Temp. (^{0}C)		RH (%)		Rainfall (mm)	Rainy days	Sunshine hours	Severity (%)	Incidence (%)
			Max.	Min.	Max.	Min.					
1	45	05.11.2022 -11.11.2022	30.97	19.86	83.86	38.14	0.00	0.00	7.10	0.00	0.00
2	46	12.11.2022 - 18.11.2022	30.60	17.43	78.29	40.00	0.00	0.00	5.13	0.00	0.00
3	47	19.11.2022- 25.11.2022	29.20	17.63	78.43	47.43	0.06	0.00	3.89	3.50	1.21
4	48	26.11.2022 - 02.12.2022	31.00	17.80	72.71	47.14	0.00	0.00	5.23	10.00	4.82
5	49	03.12.2022 - 09.12.2022	30.74	17.14	71.14	37.57	0.00	0.00	4.16	15.50	8.01
6	50	10.12.2022- 16.12.2022	28.71	18.94	85.00	59.29	1.91	0.43	2.31	19.50	10.12
7	51	17.12.2022 - 23.12.2022	30.97	15.23	84.57	35.86	0.00	0.00	6.06	27.50	14.34
8	52	24.12.2023-31-12-2023	31.55	18.20	83.63	41.75	0.00	0.00	6.26	35.50	19.83
9	1	01.01.2023 – 07.01.2023	30.66	18.86	82.00	41.00	0.00	0.00	4.87	47.00	24.47
10	2	08.01.2023 – 14. 01.2023	30.31	13.17	74.00	25.29	0.00	0.00	8.39	55.00	27.00
11	3	15.01.2023-21.01.2023	31.06	16.00	75.57	29.43	0.00	0.00	9.24	61.50	28.27
12	4	22.01.2023 – 28.01.2023	30.43	17.49	77.71	31.14	0.00	0.00	7.94	65.50	29.53
13	5	29.01.2023– 04.02.2023	31.34	17.17	76.29	35.00	0.00	0.00	6.81	66.00	30.37
14	6	05. 02.2023-11. 02.2023	33.49	18.31	68.29	29.29	0.00	0.00	8.26	66.00	31.25
15	7	12. 02.2023-18.02.2023	31.26	17.03	76.78	33.27	0.00	0.00	7.40	67.50	32.00
16	8	19.02.2023 – 25.02.2023	31.22	16.86	75.81	32.06	0.00	0.00	7.56	68.50	32.45

Table 3. Progression of guava scab disease in relation to weather parameters on Arka Kiran variety

Sl. No.	SMW	Date	Temp. (^{0}C)		RH (%)		Rainfall (mm)	Rainy days	Sunshine hours	Severity (%)	Incidence (%)
			Max.	Min.	Max.	Min.					
1	50	10.12.2022- 16.12.2022	28.71	18.94	85.00	59.29	1.91	0.43	2.31	0.00	0.00
2	51	17.12.2022 - 23.12.2022	30.97	15.23	84.57	35.86	0.00	0.00	6.06	0.00	0.00
3	52	24.12.2023-31-12-2023	31.55	18.20	83.63	41.75	0.00	0.00	6.26	0.00	0.00
4	1	01.01.2023 – 07.01.2023	30.66	18.86	82.00	41.00	0.00	0.00	4.87	0.00	0.00
5	2	08.01.2023 – 14. 01.2023	30.31	13.17	74.00	25.29	0.00	0.00	8.39	0.00	0.00
6	3	15.01.2023-21.01.2023	31.06	16.00	75.57	29.43	0.00	0.00	9.24	0.00	0.00
7	4	22.01.2023 – 28.01.2023	30.43	17.49	77.71	31.14	0.00	0.00	7.94	4.50	2.91
8	5	29.01.2023– 04.02.2023	31.34	17.17	76.29	35.00	0.00	0.00	6.81	10.50	12.75
9	6	05. 02.2023-11. 02.2023	33.49	18.31	68.29	29.29	0.00	0.00	8.26	34.50	26.31
10	7	12. 02.2023-18.02.2023	31.26	17.03	76.78	33.27	0.00	0.00	7.40	55.50	46.66
11	8	19.02.2023 – 25.02.2023	31.22	16.86	75.81	32.06	0.00	0.00	7.56	63.97	67.00
12	9	10.12.2022- 16.12.2022	34.60	18.09	53.14	21.71	0.00	0.00	8.01	68.21	79.00
13	10	17.12.2022 - 23.12.2022	34.66	18.54	51.00	23.14	0.00	0.00	7.37	69.98	81.00
14	11	12.03.2023-18.03.2023	34.89	20.40	66.43	31.29	0.43	0.14	5.54	72.00	81.00
15	12	19.03.2023-25.03.2023	34.40	19.63	64.71	24.43	1.34	0.14	7.83	74.51	85.00

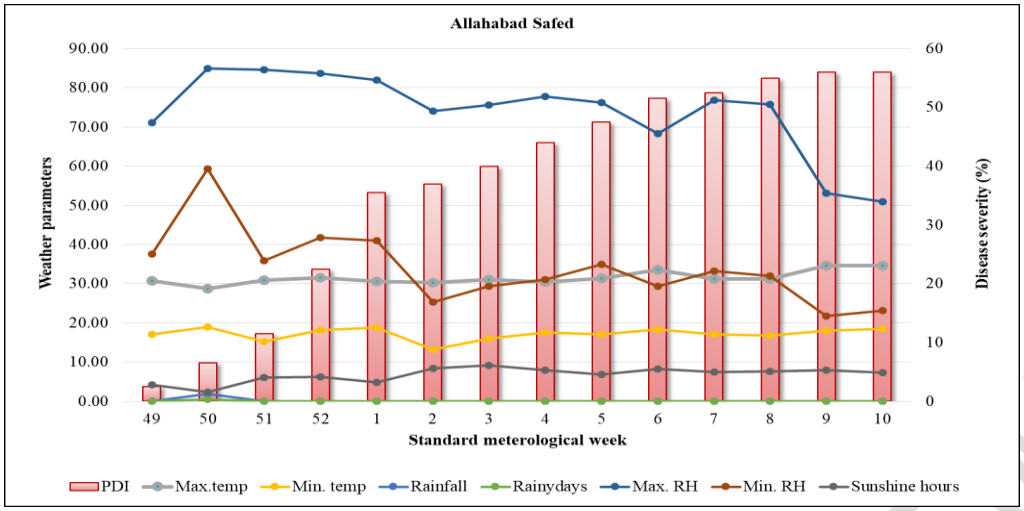

Fig. 1. Progression of guava scab in relation to weather parameters on Allahabad Safed variety

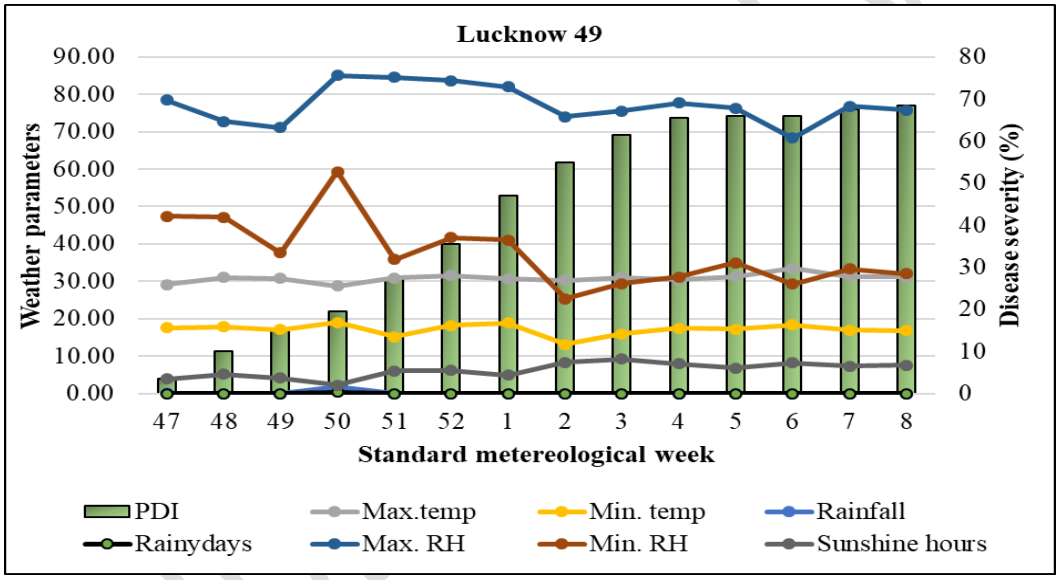

Fig. 2. Progression of guava scab in relation to weather parameters on Lucknow 49 variety

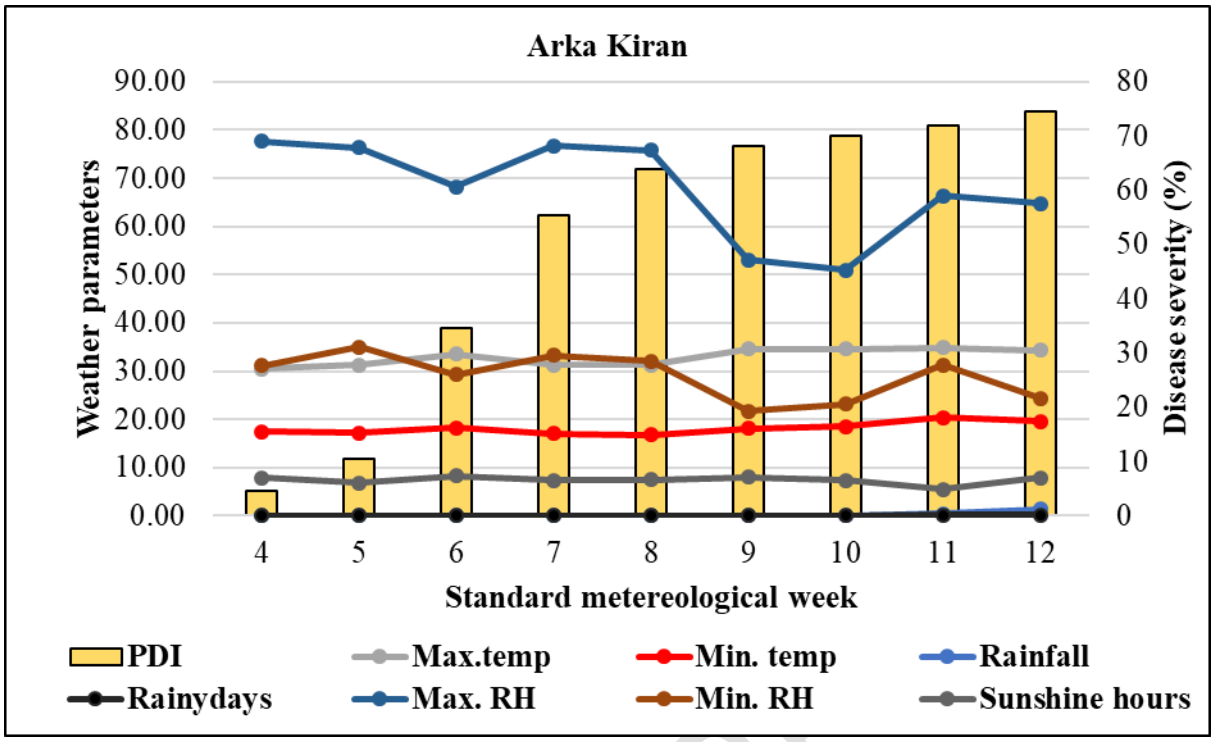

Fig. 3. Progression of guava scab in relation to weather parameters on Arka Kiran variety

Table 4. Correlation coefficient between weather parameters with guava scab on Allahabad Safed variety

Parameters	Y	X_1	X_2	X_3	X_4	X_5	X_6	X_7
Y PDI	1.000							
X_1 Maximum temperature (^oC)	0.587*	1.000						
X_2 Minimum temperature (^oC)	0.023	0.261	1.000					
X_3 Rainfall (mm)	− 0.377	− 0.475	0.305	1.000				
X_4 Rainy days	− 0.377	− 0.484	0.305	1.000**	1.000			
X_5 Relative humidity (max) (%)	− 0.482	− 0.858**	− 0.171	0.306	0.306	1.000		
X_6 Relative humidity (min) (%)	− 0.747**	− 0.693**	0.367	0.694**	0.694**	0.665**	1.000	
X_7 Sunshine hours (hrs/day)	0.753**	0.506	− 0.419	− 0.646**	− 0.679**	− 0.396	− 0.853**	1.000

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Table 5. Multiple regression analysis for guava scab severity in relation to weather parameters on Allahabad Safed variety

Location	Constant	X_1	X_2	X_3	X_4	X_5	X_6	X_7	R	R^2
MARS, Raichur	122.870	0.045	5.563	0.060	0.060	− 0.133	− 0.216	9.481	0.757	0.572
Multiple linear regression equation										
Y= 122.870 + 0.045X_1 + 5.563X_2 + 0.060 X_3 + 0.060X_4 − 0.133X_5 − 0.216X_6 + 9.481X_7										

X_1: Max. Temp, X_2: Min. Temp, X_3: Max. RH, X_4: Min. RH, X_5: Rainfall (mm), X_6: Rainy days and X_7: Sunshine hours

Table 6. Correlation coefficient between weather parameters with guava scab on Lucknow 49 variety

Parameters	**Y**	**X_1**	**X_2**	**X_3**	**X_4**	**X_5**	**X_6**	**X_7**
Y PDI	1.000							
X_1 Maximum temperature (^oC)	0.533*	1.000						
X_2 Minimum temperature (^oC)	− 0.207	0.012	1.000					
X_3 Rainfall (mm)	− 0.239	− 0.565*	0.340	1.000				
X_4 Rainy days	− 0.226	− 0.551*	0.336	1.000**	1.000			
X_5 Relative humidity (max) (%)	− 0.244	− 0.520*	0.176	0.436	0.433	1.000		
X_6 Relative humidity (min) (%)	− 0.707**	− 0.602*	0.621	0.691**	0.680**	0.510	1.000	
X_7 Sunshine hours (hrs/day)	0.795**	0.624*	− 0.513	− 0.567*	− 0.556*	− 0.427	0.904**	1.000

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Table 7. Multiple regression analysis for guava scab severity in relation to weather parameters on Lucknow 49 variety

Location	**Constant**	**X_1**	**X_2**	**X_3**	**X_4**	**X_5**	**X_6**	**X_7**	**R**	**R^2**
MARS, Raichur	24.918	0.016	0.273	0.313	0.312	0.117	− 0.068	10.505	0.817	0.668
Multiple linear regression equation										
Y= 24.918 + 0.016X_1 + 0.273X_2 + 0.313X_3 + 0.312X_4 + 0.117X_3 − 0.068X_4 + 10.505X_7										

X_1: Max. Temp, X_2: Min. Temp, X_3: Max. RH, X_4: Min. RH, X_5: Rainfall (mm), X_6: Rainy days and X_7: Sunshine hours

Table 8. Correlation coefficient between weather parameters with guava scab severity on Arka Kiran variety

Parameters	Y	Y	X_1	X_2	X_3	X_4	X_5	X_6
Y PDI	1.000							
X_1 Maximum temperature (^oC)	0.736*	1.000						
X_2 Minimum temperature (^oC)	0.643*	0.823**	1.000					
X_3 Rainfall (mm)	0.432	0.449	0.640	1.000				
X_4 Rainy days	0.487	0.554	0.816**	0.867**	1.000			
X_5 Relative humidity (max) (%)	− 0.631	− 0.870**	− 0.537	− 0.159	− 0.160	1.000		
X_6 Relative humidity (min) (%)	− 0.493	− 0.711*	− 0.375	− 0.303	− 0.143	0.886**	1.000	
X_7 Sunshine hours (hrs/day)	− 0.438	− 0.336	− 0.604	− 0.152	− 0.496	0.088	− 0.294	1.000

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)

Table 9. Multiple regression analysis for guava scab severity in relation to weather parameter on Arka Kiran variety

Location	Constant	X_1	X_2	X_3	X_4	X_5	X_6	X_7	R	R^2
MARS, Raichur	355.084	12.233	0.096	0.127	0.114	0.038	0.062	− 0.215	0.736	0.542
Multiple linear regression equation										
Y= 355.084 + 12.233X_1 + 0.096X_2 + 0.127X_3 + 0.114X_4 + 0.038X_5 + 0.062X_6 − 0.215X_7										

X_1: Max. Temp, X_2: Min. Temp, X_3: Max. RH, X_4: Min. RH, X_5: Rainfall (mm), X_6: Rainy days and X_7: Sunshine hours

Temperature has a major influence on the mycelial growth and sporulation. Temperature influences conidial germination, appressoria formation and the germ-tube penetration into the host. More frequent rains help in inoculum dispersal, thus favourable weather set for maximum disease development. The influence of rain splashes on inoculum dispersal from an infection focus was well supported by the outcome of correlation and regression analysis when disease development was seen as dependent variable in relation with weather of preceding first week. Bright sunshine hours has a positive correlation with the disease development of guava scab which influenced the disease severity. These results are in confirmation with the findings of [7] who reported that, the lowest incidence and severity of leaf spot disease of coconut caused by *Pestalotiopsis palmarum* disease were recorded in January at temperature, relative humidity and rainfall of 16 °C, 77 per cent and no rain, respectively. The highest prevalence of incidence and severity were recorded in October at temperature of 27.9 °C, 82 per cent relative humidity and 122 mm rainfall. Based on the correlation and regression analyses they reported that, temperature was positively correlated with severity and incidence of the disease. As per the findings of [8] who studied on the effect of different epidemiological factors on severity and incidence of guava scab in Bangladesh. Their study revealed that, in different growing seasons of guava seedlings, the highest incidence (50.30 % and 66.84 %) and the highest severity (43.17 % and 56.19 %) of scab disease were recorded in January in which average temperature, relative humidity and rainfall were 16.88 °C, 73.80 % and 0.52 cm, and 30.50 °C, 83.50 %, 5.50 cm, respectively and the results are in contradictory to the findings made by [9].

4. CONCLUSION

In epidemiological studies, irrespective of the varieties, interaction among maximum temperature, minimum temperature, maximum relative humidity, minimum relative humidity, rainy days and rainfall showed significant positive correlation with guava scab disease. Temperature has a major influence on the mycelial growth and sporulation. The optimum temperature influences conidial germination, appressoria formation and the germ-tube penetration into the host. The influence of rain splashes on inoculum dispersal from an infection focus was well supported by the outcome of correlation and regression analysis during disease development.

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