



e-ISSN: 2319-8753 | p-ISSN: 2320-6710

IJIRSET

International Journal of Innovative Research in
SCIENCE | ENGINEERING | TECHNOLOGY

INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

Volume 10, Issue 5, May 2021

ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

Impact Factor: 7.512

9940 572 462

6381 907 438

ijirset@gmail.com

www.ijirset.com



Studies on Severity of Leaf Blight Disease in Safed Musli Cultivation

Dr. Sachin V. Tawade

Assistant Professor & Head Department of Botany, D. B. A.C.S., College, Bhokar, Nanded, India

ABSTRACT: Leaf blight of Safed musli caused by the fungus *Colletotrichum capsici* is one of the most important diseases found throughout the cultivated fields of Marathwada. However the disease does not develop until the favorable weather conditions prevail. Present work was undertaken to study the severity of leaf blight incidence in the fields of Safed musli at Parbhani. Field experiment was conducted in three crop seasons from 2007 to 2009. It was observed that % DSI was more with increase in rainfall, optimum temperature and relative humidity while it was found reduced with low rainfall, temperature and optimum relative humidity.

KEYWORDS: Leaf blight, disease severity, Safed Musli.

I. INTRODUCTION

Leaf blight of Safed musli caused by the fungus *Colletotrichum capsici* is one of the most important diseases found throughout the cultivated fields of Marathwada and Viderbha region of Maharashtra. However the disease does not develop until the favorable weather conditions prevail. Lower minimum temperature and cloud cover have been reported to be closely associated with the disease (Padmanabhan *et al* 1971; Prasad and Rana 2002). The disease incidence' has been reported to be greatly influenced by the epidemiological factors such as rainfall, relative humidity and temperature. (Rao and Satyanaryan, 1991; Mohanchander and Thind, 1995; Pedrojunior *et al.*, 1998). Disease severity in musli influenced by weather factors (Tekade *et al* 2009). Since the weather is clearly an important factor in the disease development, present work was undertaken to study the influence of weather parameters on leaf blight of Safed musli at fields of Parbhani.

II. METHODOLOGY

The incidence of leaf blight disease was studied in relation to temperature rainfall and relative humidity at field of Safed musli in Parbhani from Marathwada region of Maharashtra. For this purpose, the metrological data of the year 2007 to 2009 was obtained from the Department of Metrology, Marathwada Agricultural University, Parbhani. The disease incidence was observed and recorded in the form of percentage by calculating disease severity index (DSI) in relation to rainfall, temperature and relative humidity during the year 2007 to 2009 in the month of August and September.

100 healthy and infected leaves were collected randomly from the field and observed keenly. Depending upon infection percentage, the leaves were classified into nine grades for calculation of disease severity index (DSI) by using nine point scale as given by Mayee (1983).

Disease severity index was calculated by using following formula.

$$DSI = \frac{\sum \text{of all ratings}}{\text{No. of observations} \times \text{All rating} - 1} \times 100.$$

It shows grades as I to IX, percent infection from 0 to 100% and reaction of genotypes against grade from immune to highly susceptible.



9-point scale for determining DSI.

Grade	% Infection	Disease Reaction
I	0	Immune
II	1-20	Resistant
III	21-30	Moderately resistant
IV	31-40	Moderately Susceptible
V	41-50	Susceptible
VI	51-60	Susceptible
VII	61-70	Susceptible
VIII	71-80	Highly Susceptible
IX	81-90	Highly Susceptible

Depending upon infection percentage, the leaves were classified into IX grades. The 0 % infection observed was considered as Immune, infection in range from 1 to 20 was considered as resistant, infection in range 21 to 30 % was considered as moderately resistant and between 31 to 40 % infection was considered as moderately susceptible. The infection between 41 to 70 % was considered susceptible and from 81 to 100% was considered as highly susceptible.

IV. EXPERIMENTAL RESULTS

The disease severity index study at fields in Parbhani showed variation during the year 2007, in the month of August to September, the prevailing rainfall was from 23.17 to 43.87 mm, temperature was recorded from 31.3 to 31.4° C and relative humidity was from 83.5 to 87.5 %, which shows variation in disease severity index i.e. 15.6 to 17.8 %. In the month of August to September, 2008, the prevailing rainfall was from 17.05 to 56.45 mm, temperature was recorded from 27.7 to 30.7 ° C and relative humidity from 86.2 to 88.5 %, which indicates variation in disease severity index i.e. 13.8 to 17.8 %. In 2009, during the month of August to September, the prevailing rainfall was from 15.10 to 59.67 mm, temperature was recorded from 32.1 to 33.2 ° C and relative humidity from 80.2 to 82.5 %, which gives variation in disease severity index i.e. 13.8 to 20.8 %.

The three years data shows that the in the month of August 2009 % DSI was 20.8 with increase in rainfall i.e. 59.67 mm with 82.5 % RH while it was found lowest 13.8 with low rainfall 17.5 mm with 86.2 % of RH. In the month of September % DSI was 17.8 with increase in rainfall i.e. 56.45 mm with 88.5 % RH while it was found lowest 13.8 with low rainfall 33.8 mm with 80.2 % of RH at the field of Parbhani as mentioned in table 1. fig. 1.

V. CONCLUSION

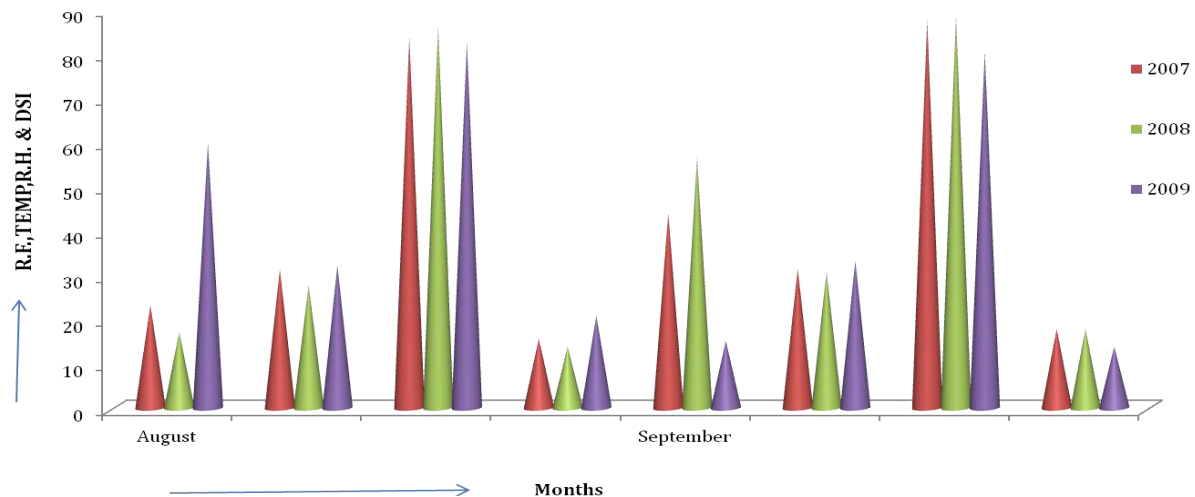
The severity of leaf blight disease was more with increase in rainfall, optimum temperature and relative humidity while it was found reduced with low rainfall, temperature and optimum relative humidity.



Year	Disease Severity Index							
	August				September			
	R.F. (mm)	Temp. (°C)	R.H. (%)	Incidence (DSI)	R.F. (mm)	Temp. (°C)	R.H. (%)	Incidence (DSI)
2007	23.17	31.3	83.5	15.6	43.87	31.4	87.5	17.8
2008	17.05	27.7	86.2	13.8	56.45	30.7	88.5	17.8
2009	59.67	32.1	82.5	20.8	15.10	33.2	80.2	13.8
X	33.29	30.3	84.0	16.7	38.47	31.6	85.4	16.4
SD	18.81	1.91	1.58	2.96	17.30	1.06	3.67	1.88
SE ± 1	10.86	1.10	0.91	1.71	9.992	0.61	1.94	1.08
CD @ 5%	46.69	4.75	3.93	7.35	42.96	2.63	8.35	4.33

Table 1: Incidence of Leaf blight of Safed musli at different Rainfall, Temperature and Relative Humidity at Parbhani field.

Fig.1: Incidence of Leaf blight of Safed musli at different Rainfall, Temperature and Relative Humidity at Parbhani field





REFERENCES

- [1] Mayee, C. D. (1983). Final report of project, "Epidemiology and forecasting of Groundnut rust in Marathwada region". Final report of research project.
- [2] Mohanchander and Thind, T.S. (1995). *Indian J. Mycology and Phytopath.*, 25: 25-28.
- [3] Padmanabhan SY, Chakrabarti NK and Rao KVS RK (1971). Forecasting and control of rice disease. *Proc. Indian Acad. Sci.* 37: 423-429.
- [4] Pedrojunior, M.J. *et al.* (1998). *Summa Phytopathologica*. 24: 151-156.
- [5] Prasad R and Rana RS (2002). Weather relation of rice blast in mid hills of Himachal Pradesh. *J. of Agril. Res.* 41(2):132-136.
- [6] Rao, KC. and Satyanaryan, C. (1991). *Indian Phytopath.* 44: 501-506.
- [7] Tekade A., Koche M. and Raut BT (2009). Influence of weather factor on fungal diseases of Musli. *J. Pl. Dis. Sci.* 4(2):173-175.



INNO  **SPACE**
SJIF Scientific Journal Impact Factor

**Impact Factor:
7.512**

ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

 **9940 572 462**  **6381 907 438**  **ijirset@gmail.com**



www.ijirset.com

Scan to save the contact details