



ISSN (E): 2277-7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2023; 12(8): 1575-1577
© 2023 TPI

www.thepharmajournal.com

Received: 20-05-2023

Accepted: 25-06-2023

Sintoo Prajapati

Department of Plant Pathology,
Tilak Dhari Post Graduate
College, Jaunpur, Uttar Pradesh,
India

Prem Chand Singh

Department of Plant Pathology,
Tilak Dhari Post Graduate
College, Jaunpur, Uttar Pradesh,
India

Ramesh Singh

Department of Plant Pathology,
Tilak Dhari Post Graduate
College, Jaunpur, Uttar Pradesh,
India

Survey for incidence of brown leaf spot of rice (*Oryza sativa* L.) in Eastern Uttar Pradesh

Sintoo Prajapati, Prem Chand Singh and Ramesh Singh

Abstract

Rice (*Oryza sativa* L.) is the most significant cereal crop in the world, and comes from a family of Gramineae or Poaceae (2n = 24) native to Burma's Indo-China area where it is cultivated as one of the main food crops for rural populations and their feeding security. The survey is done to record the severity of disease in five Districts viz., Jaunpur and adjoining area of Jaunpur mainly Varanasi, Chandauli, Azamgarh and Bhadohi. The disease incidence varied from 28.20% to 48.50% in 2018-19 of different location. The highest incidence of disease was recorded at farmers field Haripur village of Jaunpur (50.40) and minimum was found in Bhadohi of village Harduwa (27.00) in year 2018-19. In year 2019-20 the disease incidence varies from 25.50-46.50 in different location highest average disease incidence was recorded in Jaunpur (46.50) followed by Chandauli (40.20), Varanasi (40.00), Azamgarh (30.50) and minimum was recorded in Bhadohi (25.50).

Keywords: Rice, brown leaf spot, disease incidence and Eastern Uttar Pradesh

Introduction

Rice (*Oryza sativa* L.) belongs to the family Gramineae or Poaceae (2n = 24) and it is originated from Indo Burma region and is most important cereal crop worldwide rice is a major food staple and a mainstay for the rural population and their food security, It is the second most cultivated cereal crop worldwide and is central to the lives of billions of people around the world (Nguyen and Ferrero, 2006) [3]. In the north and west of the country, where it rains heavily and the winter temperature is quite low, only one rice crop is grown per month from May to November. India has three seasons for growing rice - autumn, winter and summer. The main growing season of rice in the country is Kharif. It is known as winter rice after harvest. Winter rice (kharif) is sown in June-July and harvested in November-December. Winter rice is known as 'Aman' in West Bengal, 'Sali' in Assam, 'Sarrad' in Orissa, 'Agahani' in Bihar and Uttar Pradesh, 'Sarava' in Andhra Pradesh, 'Mundakan' in Kerala and 'Samba/Thaladi' in Tamil Nadu. In the kitchen, rice is an ingredient in many soups and dishes with fish, poultry and other meats. It is used to stuff vegetables or wrapped in grape leaves (dolma). Together with milk, sugar and honey, it is used to make desserts. In some regions, such as Tabaristan, bread is made from rice flour. Rice can be made into congee (also called rice porridge or rice porridge) by adding more water than usual to saturate the cooked rice with water, usually until it breaks. Rice porridge is usually eaten for breakfast and is a traditional food for the sick. Rice is infected by number of seed borne fungal pathogens namely *Alternaria padwickii*, *Helminthosporium oryzae*, *Cercospora oryzae*, *Fusarium moniliforme*, *Phoma glumarum*, *Pyricularia oryzae* and *Ustilagoidea virens* (Shoemaker, R.A. 1959) [4]. Among these, three most important pathogens are *Pyricularia oryzae*, (blast), *Helminthosporium oryzae*, (brown spot) and *Xanthomonas oryzae* pv. *oryzae*, (bacterial blight). In USA, the first two diseases account for 30 per cent losses in rice, which means about 2 per cent loss of total annual rice production.

Materials and Methods

The survey is done in five district in year 2018-19 and 2019-20 during *Kharif* in the farmers field viz., Jaunpur and adjoining area of Jaunpur mainly Varanasi, Chandauli, Azamgarh and Bhadohi. In each district two blocks and two villages in each block was selected the plants were randomly selected. The survey is done to record the severity of disease in percentage of disease incidence by the formula given below:

Corresponding Author:

Sintoo Prajapati

Department of Plant Pathology,
Tilak Dhari Post Graduate
College, Jaunpur, Uttar Pradesh,
India

$$\text{Percent Disease Incidence} = \frac{\text{Total number of infected plant}}{\text{Total number of plant screened}} \times 100$$

Result and Discussion

In order to know the disease incidence of brown leaf spot of rice a field survey was conducted to record the disease incidence in Eastern Uttar Pradesh of District Jaunpur and adjoining area of Jaunpur mainly Varanasi, Chandauli, Azamgarh, Bhadohi. Symptoms in the field were identified by gray-brown spots. The typical spots on leaves are brown with a gray to whitish center, cylindrical to oval in shape, similar to sesame seeds, usually with yellow halos, while young spots are small, round and appear dark brown to purplish brown. (Fig. 1) similar result confined with the finding of (Hafiz *et al.*, 2013) [2]. The observation revealed that the brown leaf spot disease of paddy was prevalent in all the paddy growing areas of Eastern Uttar Pradesh. The result is presented in Table-1 with corresponding histogram fig. 1 reveal that the

disease incidence varied from 28.20% to 48.50% in different location. The maximum average percentage of disease (48.50) in Jaunpur followed by Chandauli (45.00), Varanasi (44.00), Azamgarh (30.00) and minimum was found in Bhadohi (28.20). The maximum disease was recorded in village Haripur of block Barsathi of Jaunpur district with percent disease incidence (50.40%) and the minimum disease incidence (27.10) was recorded in village Harduwa of district Bhadohi. The result of second year 2019-20 are presented in Table 1 with corresponding histogram fig.1 reveals that the disease incidence varies from 46.50% to 25.50% in different location highest average disease incidence was recorded in Jaunpur (46.50) followed by Chandauli (40.20), Varanasi (40.00), Azamgarh (30.50) and minimum was recorded in Bhadohi (25.50). The maximum disease incidence (47.75) was recorded in village Gutwan of block Mariahu of Jaunpur district and minimum disease incidence (25.00) was recorded in Harduwa of district Bhadohi. The similar were also found by Baranwal *et al.*, (2013) [1].

Table1: Incidence of *Helminthosporium oryzae* brown leaf spot of Rice at different location in Eastern Uttar Pradesh 2018-19 and 2019-20

S.N	Location	Block	Village	Percent Disease Incidence (2018-19)	Percent Disease Incidence (2019-20)	Average percentage of Disease incidence (2018-19)	Average percentage of Disease incidence (2019-20)
1.	Jaunpur	Barsathi	Haripur	50.40	46.25	48.50	46.50
			Mangra	48.12	45.50		
		Mariyahu	Sudanipur	47.20	46.50		
			Gutwan	48.28	47.75		
2.	Chandauli	Chandauli	Baburi	44.75	37.50	45.00	40.20
			Bahera	45.00	40.00		
		Chakiya	Tiari	44.25	38.30		
			Sonhul	46.00	45.00		
3.	Varanasi	Baragaon	Fattepur	46.00	41.00	44.00	40.00
			Tadi	43.50	39.00		
		Pindra	Ajaipur	44.00	42.00		
			Kanakpur	42.50	38.00		
4.	Azamgarh	Thekma	Saraimohan	30.00	31.00	30.00	30.50
			Jibli	32.50	32.00		
		Martinganj	Dubra	29.00	30.00		
			Jagdishpur	28.50	29.00		
5.	Bhadohi	Abholi	Karanpur	28.10	23.50	28.20	25.50
			Harduwa	27.00	25.00		
		Suriyawan	Bhikhamapur	28.70	26.50		
			Chaurapur baidan	29.00	27.00		

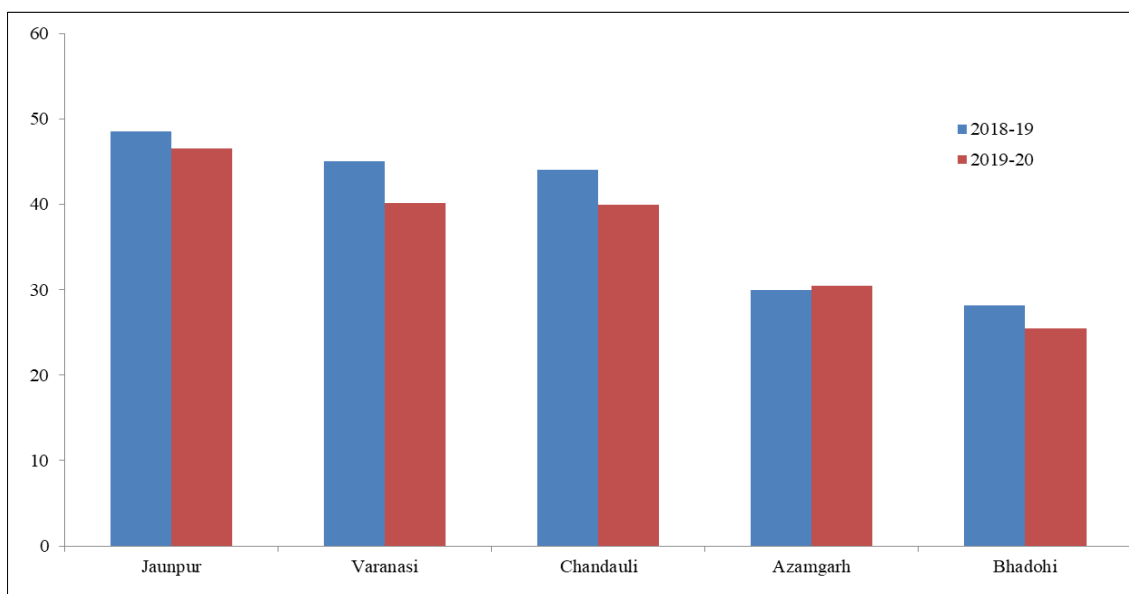




Fig 1: Symptom of Brown leaf spot

Conclusion

The survey is done to record the severity of disease in five Districts, viz., Jaunpur and adjoining area of Jaunpur mainly Varanasi, Chandauli, Azamgarh and Bhadohi. The disease incidence varied from 28.20% to 48.50% in 2018-19 of different location. The highest incidence of disease was recorded at farmers field Haripur village of Jaunpur (50.40) and minimum was found in Bhadohi of village Harduwa (27.00). In year 2019-20 the disease incidence varies from 25.50-46.50 in different location highest average disease incidence was recorded in Jaunpur (46.50) and minimum was recorded in Bhadohi (25.50). Hence the farmers are advised to adopt resistant varieties or use systemic fungicide to lower down the disease severity.

Acknowledgment

I am highly grateful to my supervisor Dr. P.C. Singh and Head of department Prof. (Dr.) Ramesh Singh for their effort and supporting during course of investigation.

Conflict of interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References

1. Baranwal MK, Kotasthane A, Magculia N, Mukherjee PK, Savary S, Sharma AK, *et al.* A review on crop losses, epidemiology and disease management of rice brown spot to identify research priorities and knowledge gaps. *European J Pl. Pathol.* 2013;136:443-457.
2. Hafiz MIA, Hussain N, Ali S, Khan JA, Saleem K, Babar MM. Behavior of *Bipolaris oryzae* at different temperatures, culture media, fungicides and rice germplasm for resistance. *Pak. J Phytopath.* 2013;25(1):84-90.
3. Nguyen NV, Ferrero A. Meeting the challenges of global rice production. *Paddy, Water and Environment.* 2006;4:1-9.
4. Shoemaker RA. Nomenclature of *Drechslera* and *Bipolaris*, grass parasites segregated from 'Helminthosporium'. *Canadian J Bot.* 1959;27:879-889.