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Survey for the incidence of pearl millet blast disease in pearl millet growing districts of Madhya Pradesh

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Abstract
Blast has emerged as an important disease in the major pearl millet growing areas in India. The disease survey was carried out in Morena, Bhind, Gwalior and Sheopur during 2019-20 to 2020-21 as these four districts jointly contribute more than 70% in area and production of the state. The survey result reveals that blast is a serious problem in the Northern region of M.P. As it's severity in the above four districts were 33.23%, 33.75%, 23.68% and 22.70% respectively. Occurrence of blast is comparatively higher in Bhind and Morena district as compared to Gwalior and Sheopur district.

Keywords: pearl millet, blast disease, pearl millet

Introduction
Millets rank as the world's sixth most important food crops among cereals. There are major and minor millets, among the minor millets pearl millet is one. It has a great potential to grow on soils that are too sandy, light-textured, acidic, dry and too infertile for other cereals. Pearl millet is cultivated in over 30 countries of Asia, Africa and America where dry land system is possible. India and Africa are together occupying 90 percent area of total pearl millet production in the world (Yadav *et al.*, 2012) [8]. Blast disease is caused by *Pyricularia grisea* (Cooke) Sacc. is an important fungal disease of pearl millet known to occur in most pearl millet producing areas of the world. The disease can strike all aerial parts of the plant. Most infections occur on the leaves, causing diamond-shaped lesion with a gray or white center to appear. (Scardaci *et al.*,1997) [7]. Once on a bajra plant, the fungus rapidly produces thousands of spores, which carried readily through the air, by wind or rain, onto neighboring plants (Rick and Lee, 2000) [6]. Blast was first appeared in Asia more than three century ago and is now present in over 85 countries. It is highly adaptable to environmental conditions. The disease results in yield loss as high as 70 to 80% when predisposition factor (high mean temperature values, drought stress and excessive nitrogen fertilizer) favor epidemic development. (Piotti *et al.*, 2005) [5].
The severity of pearl millet blast in northern Madhya Pradesh during 2005 and 2006 was in the range of 1-15 and 1-10 per cent, respectively (Anon., 2005 and Anon., 2006) [1, 2]. Yadav *et al.* (2012) [8] observed pearl millet blast as an important biotic constraint in northern Madhya Pradesh and reported that the average severity of blast in Morena, Bhind and Gwalior was 11.53, 13.40 and 11.28 percent respectively.

Material and Method
A well planned survey was conducted during 2019-20 to 2020-21 of major pearl millet growing area of M.P. will be carried out to assess severity of pearl millet blast. For such survey three locations from each district and five fields from each location will be randomly selected. The blast severity will be recorded on 25 randomly selected plants from each field by adopting blast severity rating scale 0 – 9 (Mayee and Datar,1986) [4]. There after PDI will be calculated. Infected leaves from each district will also be collected for preparation of isolates.

Result and Discussion
A planned survey of pearl millet blast was carried out in Morena, Bhind, Gwalior and Sheopur districts during 2019-20 and 2020-21 respectively. Pearl millet blast severity across the block was in the range of 14.70% to 42.20%. None of the location were found completely free from blast during both surveyed years. Maximum blast PDI during the year 2019-20 was recorded in Morena district (38.14%) while minimum blast PDI was recorded 24.31% in Gwalior

district. During the year 2020-21, the maximum severity of blast was recorded in Bhind district (36.10%) while minimum blast severity was recorded in Gwalior district (16.36%).

Table 1: Status of Pearl millet blast in Morena, Bhind, Sheopur and Gwalior districts of M.P. during 2019-20 and 2020-21.

Sr. No.	District	Blast PDI Mean		
		2019	2020	Mean
1.	Morena	38.14	28.32	33.23
2.	Gwalior	24.31	23.06	23.68
3.	Bhind	36.10	31.39	33.75
4.	Sheopur	26.04	19.36	22.70

The two years mean data indicates that the maximum blast PDI was found in Bhind followed by Morena and Gwalior while the minimum blast PDI was recorded in Sheopur. Devda (2009) [3] surveyed the pearl millet fields of Morena, Bhind and Gwalior and reported 5.5, 3.8 and 5.4 per cent severity of blast respectively.

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