J. Phytol. Res. **16**(1) : 113-114 , 2003

STATUS OF DOWNY MILDEW DISEASE IN TRUTHFULLY LABELED PEARL MILLET HYBRIDS OF FARMERS FIELD IN RAJASTHAN

A. K. SOBTI and R. L. MEENA
Department of Plant Pathology, Rajasthan Agricultural University, Agricultural Reasearch Station, Durgapura, Jaipur-302018, India.

Pearl millet *(Pennisetum glaucum)* is an important rainfed crop of the semi arid, tropical parts of the world. Downy mildew disease induced by *Sclerospora graminicola* is a devastating disease and is responsible for replace some of the best hybrids. In survey and monitoring programme DM disease incidence on farmers field were recorded during 1998-2000 in the major pearl millet growing districts of Rajasthan. Out of 25 cultivated hybrids recorded during the survey, only 3 cultivars were placed in highly resistant (HR) category as having a <5% DM incidence, while 6 were placed in resistant category (>5.1-10%). Remaining 5 and 11 TFL cultivars were placed in susceptible(s) and highly susceptible (HS) category respectively.

Keywords : Downy mildew; Pearl millet; *Sclerospora graminicola;* Truthfully labeled seeds.

Pearl millet *(Pennisetum glaucum L.)* R. Br. is an important rainfed crop of semi arid tropical parts of the world. Rajasthan occupies approximately 3.93 million ha producing 1.13 m tons of grain besides stover as a vital source of cattle feed.

Downy mildew disease caused by *Sclerospora graminicola* (Sacc.) J. Schroet is a devastating disease[1] and is alone responsible to replace some of the best hybrids, BJ-104 and MH-179[2,3].

In AICMIP- programme[4] survey and surveillance of downy mildew disease incidence on farmer's fields during 1998-2000 in the major pearl millet growing districts viz. Ajmer, Alwar, Bharatpur, Dausa, Sikar, Jaipur, Jhunjhunu, Nagour and Tonk were conducted following procedure followed by Thakur *et al*[5] The number frequncy of released cultivars of pearl millet at farmer's fields was very low as compared to truthfully labeled hybrids which had no locus stand for yield potential and downy mildew resistance reported earlier[6]. Out of 25 cultivated hybrids, only three were among the released hybrids *viz.* GK-1004, JKBH-26 and BK-560, the later was however withdrawn from cultivation on becoming downy mildew susceptible (Table 1). A rang of 0-65 per cent disease incidence was observed while five truthfully labeled hybrids were continuously observed for all the three years showing an average downy mildew incidence of 34.8 per cent and four hybrids for two years with an average disease incidence of 22.8 per cent and a maximum of 46.5 per cent, sixteen hybrids were sown early ones with an average downy mildew incidence of 23.2 per cent and maximum of 65 per cent disease.

The hybrids were grouped in five categories (Table 2) depending upon the degree of downy mildew susceptibility, only 9 hybrids showed permissible limits of downy mildew resistance. APC-931, JKBH-247, Pioneer 7688 as highly resistant and Ambuja, Bioseed 8434, GK-1008, JKBH-26, JKBH-243 and K-44 as resistant while rests were susceptible to highly susceptible to downy mildew. Exceptionally high disease incidence in several hybrids is accounted on the occurrence of downy mildew pathotypes on local pearl millet land race in the region as reported earlier[7,8].

The statistical weighted mean of downy mildew incidence recorded is 28.25 per cent with standard error 19.91 and the mean incidence fell in the category of susceptible necessitating complete restriction of downy mildew susceptible cultivars in the name of truthfully labeled hybrid seeds.

Acknowledgement

Authors are grateful to the Director Research, Rajasthan Agricultural University, Bikaner, Head, Department of Plant Pathology, ARS Durgapura (Jaipur) and Dr. R. P. Thakur, Senior Scientist ICRISAT for providing facilities in the field visits.

Table 1. Showing DM incidence (%) in various cultivars recorded during 1999-2000.

S. No.	Name of the cultivars	DM Incidence (%)
1.	Akash Ganga	15
2.	Ambuja	6
3.	APC 931	2
4.	BK 560	60**
5.	Bioseed 8421	46.5*
6.	Bioseed 8434	10
7.	GK 1004	28**
8.	GK 1008	10
9.	Guha 118	40
10.	JKBH 19	12
11.	JKBH 26	7.5*
12.	JKBH 243	10
13.	JKBH 247	2
14.	K 44	7
15.	Kanchan Ganga	45
16.	MBH 163	20*
17.	MBH 210	17
18.	PBH 47	53.5
19.	PG 5822	45**
20.	PG 5848	45
21.	Pioneer 7777	65
22.	Pioneer 7686	41**
23.	Pioneer 7688	0**
24.	Proagro 7701	17.5*
25.	PMI 3706	32

* Average of 2 years of wt. mean 28.2 DM - Downy mildew
** Average of 3 Years of S. E. 19.9

Table 2. Reaction of Truthfully labeled cultivars of Pearl millet to DM.

S.No.	DM Incidence (%)	Categories/Reaction	Cultivars
1.	<5	HR	APC 931, JKBH 247, Pioneer 7688
2.	5.1-10	R	Ambuja, Bioseed 8434, GK 1008, JKBH 26, JKBH 243, K-44.
3.	10.1-25	S	Akash Ganga, JKBH 19, MBH 163, MBH 210, Proagro 7701.
4.	>25.1	HS	BK 560, Bioseed 8421, GK 1004, Guha 118, Kanchan Ganga, PBH 47, PG 5822, PBH 5848, Pioneer 7777, Pioneer 7686, PMI 3706

HR : Highly resistant R : Resistant
S : Susceptible HS : Highly Susceptible

References

1. Mathur R L and Dalela G G 1971, *Indian Phytopath.* **24** 101.
2. Anonymous 1999, Coordinator's Review, Annual Pearl Millet group meeting, All India Coordinated Peal Millet Improvement Project I.C.A.R. May 4-6, 1999 C.C.S. Haryana Agril. Universiy, Hissar.
3. Thakur D P, Mathur S B, Singh G and Kandhari J 1984, *Indian Phytopath* **37** 391.
4. Anonymous 2000, Coordinator's Review, Pearl Millet Group Meeting. All India Coordinated Pearl Millet Improvement Project I.C.A.R. Feb 26-28, 2001. T.N.A.U. Coiambatore.
5. Thakur R P, Rao V P, Sastri J G, Siva Ramakrishnan S, Amruthesh K N and Barbind L D 1999, *J Mycol. Plant Pathol.* **29** 61.
6. Singh G, Meena R L, Shrikant and Mathur Mukesh 2000, National Symposium on Management of crop diseases. Perspectives and Challenges in 21st Century, Meeting Central Zone. Indian Phytopath. Soc. Nov. 24-25, 2000.
7. Singh G 1994, Proc. 81st Session, The Indian Scinece Congress, Jaipur 129 pp.
8. Singh S D and Singh G 1987, *Indian Phytopath.* **40** 178.