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Balal M.S.

in

Clément G. (coord.), Cocking E.C. (coord.).
FAO MedNet Rice: Breeding and Biotechnology Groups: Proceedings of the Workshops

Montpellier : CIHEAM
Cahiers Options Méditerranéennes; n. 8(2)

1994
pages 31-32

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Rice blast (caused by *Pyricularia oryzae*) is the most serious disease in Egypt. Hence the main objective of our rice research programme is to develop new high yielding varieties with complete or partial resistance to blast. To achieve this objective the plant pathology in collaboration with the rice breeding group are conducting the following studies every year :

1] Evaluation of breeding material for blast resistance

About 4 000 lines are tested at the seeding stage in the blast nursery in four main groups:

• **Pedigree group.** Includes about 3 000 F3-F6 lines.
• **Observational group**. This group includes entries of the observational nursery which is composed of local varieties, promising strains, and some world famous varieties.
•**Promising strains.** This group includes entries of the various yield trials (preliminary, regional and final).
• **International Blast nursery (IRBN).** This group is prepared by Irri-Inger to be tested in about 50 rice research stations.

Results of the blast nursery test for the three groups (promising lines, observational nursery and IRBN) are presented in *Table 1*. The results over five years (1988-1992) indicate that about 67 % of the entries are highly resistant (scores 1-2) and 6,4 % are moderately resistant (partial resistance).

2] Evaluation of promising lines against prevalent isolates of *P. oryzae*

155 promising strains have been evaluated in the greenhouse (RRTC) against 25 isolates of *P. oryzae* prevalent in the 6 rice growing governorates. The results showed that 75 lines were resistant, 20 moderately resistant, 30 moderately susceptible and 30 susceptible to highly susceptible. The results also clearly showed that all *Japonica* varieties grown in Egypt (Giza 171, Giza 172, Giza 159 and Giza 176) are susceptible to all isolates tested whereas *Indica* varieties/selections are resistant against all isolates (*Table 2*).

3] Identification of *P. Oryzae* races

Virulence analysis of the 25 *P. oryzae* isolates on the international differentials showed that the predominant races in Egypt are IC 3, IC 12, IC 17, ID 5, ID 13, ID 15 and IF 1. The isolates of race, 13 and ID 13 are highly aggressive on most of the *Japonica* varieties.

Table 1. Evaluation of breeding materials for blast resistance in the blast nursery, Sakha, 1988-1992

Group	Season	N° of lines at each score				Total
		1-2	3	4-6	7-9	
Promising lines	1988	14	7	4	2	27
	1989	17	3	5	3	28
	1990	14	2	8	9	33
	1991	11	4	10	5	30
	1992	19	4	3	10	36
Total	**N°**	**75**	**20**	**30**	**30**	**155**
Observation lines	1988	119	28	50	36	233
	1989	106	25	33	33	197
	1990	150	11	66	31	258
	1991	205	0	55	18	278
	1992	166	19	58	24	267
Total	**N°**	**746**	**83**	**262**	**142**	**1 233**
IRBN	1988	123	14	18	5	160
	1989	91	12	21	7	131
	1990	184	34	26	18	262
	1991	297	0	78	6	381
	1992	258	8	65	3	334
Total	**N°**	**953**	**68**	**208**	**39**	**1 268**
Grand total		**1 774**	**171**	**500**	**211**	**2 656**
% of total		**66.8**	**6.4**	**18.8**	**8.0**	

1-2 : resistant lines ; 3 : Moderately resistant lines
4-6 : Susceptible lines ; 7-9 : Moderately susceptible lines

Table 2. Percentage of *P. oryzae* isolates virulent to rice cultivates and promising strains in the greenhouse 1991-1992

Entry	Blast nursery scores *		Greenhouse test			
			1991		1992	
	1991	1992	N° of virulent isolates	Virulent race	N° of virulent isolates	Virulent race
1. Giza 181	1-2	1-2	0	0	0	0
2. IR 28	1	1	0	0	0	0
3. IR 25571-31-1	1-2	1-2	0	0	1	ID 13
4. Milyang 95	1-2	-	0	0	-	-
5. GZ 1368 S-5-4	1-2	1-2	0	0	0	0
6. ECIA 31-104	1-2	-	0	0	-	-
7. GZ 4120-205-2	1-3	2-4	1 (4 %)	IC 3	2 (8 %)	IC 1, IC 13
8. Giza 175	2-3	2	1 (4 %)	IC 3	3 (12 %)	IC 17, ID 13, IF 1
9. GZ 3766-38-1-1	2-4	2-7	2 (8 %)	ID 5, ID 15	16 (64 %)	Most of races
10. GZ 4565-S-6	4-6	4-8	16 (64 %)	Most of races	18 (72 %)	Most of races
11. GZ 4565-S-10	4-6	4-7	17 (68 %)	Most of races	18 (72 %)	Most of races
12. Giza 176	4-6	5-9	21 (84 %)	Most of races	20 (80 %)	Most of races
13. Giza 171	5-6	6-8	23 (92 %)	Most of races	22 (88 %)	Most of races
14. Giza 172	5-7	5-8	23 (92 %	Most of races	22 (88 %)	Most of races
15. Giza 159	5-7	6-9	25 (100 %)	All races	25 (100 %)	All races

* Blast nursery score is the range of three locations, i.e. Sakha, Gemmiza and Zarzoura.