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A Prospective Source of Resistance to Soybean Rust

Soybean (*Glycine max* L.) Merrill) is considered as a wonder crop due to its dual qualities viz.. high protein (40%) and oil (20%) content. This two-in-one crop has gained considerable importance in the agricultural economy of the country. Today it is being grown over an area of 4.5 million hectares in the country (Anon., 1995). The crop has gained importance in Karnataka and farmers have come forward to grow this crop and thus the area has jumped to sixty thousand hectares within a short span. But recently i.e., during *kharif* 1994 and 1995, the rust caused by *Phakopsora pachyrhizi* Syd., new to this area has suddenly appeared in epiphytotic farm and caused substantial losses up to 80% in districts of northern Karnataka. The rovers survey undertaken during *Kharif* 1995 revealed that all the varieties grown under farmers field were found highly susceptible. This has forced to search for the resistant sources. Twenty lines received from Asian Vegetable Research and Development centre (AVRDC), Taiwan, were screened under field condition during *Kharif* 1996 by creating high disease pressure with spraying of uredospore inoculum at 30 days after sowing. Each line was sown in three rows of five meter length and scoring was done 75 days after sowing.

For scoring, the three digit scientific notation given by "International Working Group on Soybean Rust (IWGSR)" at the 1976 Chiang Mai Conference was adopted and is explained as follows :

A. First digit - denotes examined leaf position of the soybean plant.

   1. Bottom third soybean leaves measured from ground level.
   2. Middle third soybean leaves measured ground level.
   3. Upper third soybean leaves measured from ground level.

B. Second digit - denotes the density of rust lesions on the examined leaves.

   1. No lesion.
   2. Light lesion density.
   3. Medium lesion.
   4 Heavy lesion density.

C. Third digit - denotes the reaction to rust.

   1. No pustules.
   2. Non-sporulating pustules.
   3 Sporulating pustules.

The scoring was also done under 1 to 9 scale given by Mayee and Datar (1986).

The results indicated that, the lines viz.. EC-392530, EC-372538 and EC-392539 have showed moderately resistant reaction (5 grade) as their bottom third leaves produced medium to heavy non sporulating postules. Lines viz. EC-392541 and EC-392548 were found next best as their middle and upper third leaves covered heavily with non sporulating pustules. All the remaining lines have showed susceptible reaction (9 grade) as their bottom, middle and upper leaves covered heavily with sporulating pustules (Table 1). The moderately resistant lines are characterized by production of rectangular reddish brown non sporulating pustules. The susceptible lines produced ochraceous red coloured heavily sporulating pustules.

Table 1. Reaction of AVRDC lines against rust of soybean caused by *P. pachyrhizi*

Sl. No.	Lines	Plant location			Reaction to rust under 1 to 9 scale
		Bottom	Middle	Upper	
1.	EC-392530 (GC-85037-2-3-5-1)	132	232	322	5
2.	EC-392531 (GC-85039-1-2-1-1)	143	243	343	9
3.	EC-392532 (GC-85056-9-2-1-2)	143	243	343	9
4.	EC-392533 (GC-86045-23-2)	143	243	343	9
5.	EC-392534 (GC-87016-11-B-2)	143	243	343	9
6.	EC-392535 (GC-87021-13-B-2)	143	243	343	9
7.	EC-392536 (GC-87012-10-B-5)	143	243	343	9
8.	EC-392537 (GC-86045-23-5)	142	243	343	9
9.	EC-392538 (GC-60020-8-7-7-18)	142	242	342	5
10.	EC-392539 (GC-00138-29)	142	232	332	5
11.	EC-392540 (SRE-B-15C)	143	243	343	9
12.	EC-392541 (SRE-C-56A)	143	242	342	6
13.	EC-392542 (SRE-D-14A)	143	243	343	9
14.	EC-392543 (SRE-D-14B)	143	243	343	9
15.	EC-392544 (AGS-302)	143	243	343	9
16.	EC-392545 (GC-86017-170-1)	143	243	343	9
17.	EC-392546 (GC-84051-32-1)	143	243	343	9
18.	EC-392547 (GC-86049-35-2-1-1-8)	143	243	343	9
19.	EC-392548 (GC-84058-18-4)	143	243	342	6
20.	EC-392549 (GC-86108-427-3)	143	243	343	9

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