AICRP Report on Sugarcane Pathology

Location: Coimbatore

PP14: Identification of pathotypes/races in red rot pathogen

Five new isolates *viz*., Cf94012 (Guruvareddyur), CfSi6 (Karaikudi), CfSi97021 (Pacheri), Cf0323 (Guruvareddyur) and Cf09356 (Elanganur) along with 4 old isolates and 3 standard isolates were independently inoculated on 14 sugarcane differentials. Among the isolates Cf09356 showed more virulence followed by CfSi6 (Karaikudi) and Cf94012. All new isolates behaved similar to the existing isolates except for Cf09356, which has broken the resistance of CoS767 and exhibited intermediate reaction(Table 1).

PP17 a: Evaluation of Pre –Zonal/IET varieties and genotypes for resistance in red rot (*Colletotrichum falcatum Went*)

a. Red rot

Seventeen IVT clones were evaluated for red rot resistance by plug and nodal methods of pathogen inoculation. This season, cotton swab nodal method of pathogen inoculation was followed and the results revealed ideal disease development in the standards and test clones. Among the 17 entries eight were found to be R/MR in both methods of testing. Three were R/MR and two were MS in plug method of testing (Table 2).

b. Smut

Seventeen IVT clones comprising of 8 early types and 9 mid-late types were evaluated for smut resistance along with their respective standards. Among the early types: 1 was R, 3 were MR and 4 were HS. Among the Mid-late clones, 1 was R, 1 was MR, 1 was MS, 3 were S and 3 were HS(Table 2).

PP22. Survey of sugarcane diseases occurring naturally in the area on important sugarcane varieties.

Disease surveys in Cauvery delta revealed red rot infections in Co 92012, CoV 09356, CoG 93076 and CoSi 6. Similarly red rot infections in CoC 671 in Gujarat were noticed. Popular varieties viz. CoA 92081 (Tamil Nadu) and Co 86002 (Gujarat) had shown severe incidences of smut. As in the previous years, YLD was found to be very severe in parts of Tamil Nadu and Gujarat in the ruling varieties. The disease has attained epidemic nature in different regions. Overall, our surveys indicated that smut and YLD occur in severe form compared to red rot.

PP 30. Assessment of field resistance in sugarcane to red rot

Field tolerance to red rot in 18 genotypes which were susceptible to red rot by plug method was assessed against grain inoculum in the field. The genotypes 2010-157, 2010-211, 2010-26, 2010-191, 2009-65, 2009-110, 2009-139, and 2009-39 remained free from the disease along with the check variety Co 86032 (Table 3).

Table 1 Pathogenic behavior of *C. falcatum* pathotypes on host differentials - Coimbatore

Sl. No.	Isolates	Reaction of host differentials													
		Co419	**Co975**	**Co 997**	**Co 1148**	**Co 62399**	**Co7717**	**CoC 671**	**CoJ 64**	**CoS 767**	**CoS 8436**	**BO 91**	**Baragua**	**Khakai**	**SES594**
1	Cf91017	S	S	S	R	S	I	S	I	R	R	R	R	I	R
2	Cf94012 Old TN	S	S	S	S	S	I	S	I	R	R	R	R	S	R
3	Cf94012 Guruvareddyur	S	I	S	S	S	R	S	S	R	R	R	R	I	R
4	CfSi6 (T)	S	I	I	S	I	I	S	I	R	R	R	R	I	R
5	CfSi6 (K)	S	I	I	S	I	I	S	S	R	R	R	R	I	R
6	CfSi6 Karaikudi	S	S	S	S	S	I	S	S	R	R	R	R	I	R
7	CfSi 97021Pacheri	S	S	S	I	S	I	S	I	R	R	R	R	R	R
8	Cf0323 Guruvareddyur	I	I	I	I	S	R	S	I	R	R	R	R	S	R
9	Cf09356 Elanganur	S	S	S	S	S	S	S	S	I	R	R	R	I	R
11	CF04	S	S	S	S	S	R	S	S	R	R	R	R	I	R
12	CF05	I	I	S	I	S	R	S	S	R	R	R	R	I	R
10	CF06	S	S	I	I	S	R	S	I	R	R	R	R	R	R

Table 2 Evaluation of IVT entries for red rot and smut resistance

Sl No	Genotype	Red rot reaction		Smut
		Plug method	Nodal method	
	IVT-Early			
1	**Co 09002**	**R**	**R**	HS
2	**Co 09003**	**MR**	**R**	MR
3	**Co 09004**	**MR**	**R**	HS
4	**Co 09005**	**RT**	**RT**	MR
5	**Co 09006**	**MR**	**R**	MR
6	**Co 09007**	**MS**	**RT**	R
7	**CoN 09071**	**MS**	**RT**	HS
8	**CoN 09072**	**MR**	**RT**	HS
	IVT-Midlate			
9	**Co 09009**	**MR**	**R**	HS
10	**Co 09010**	**RT**	**RT**	R
11	**Co 09012**	**RT**	**RT**	S
12	**Co 09013**	**RT**	**RT**	HS
13	**Co 09014**	**R**	**RT**	S
14	**CoN 09073**	**R**	**R**	S
15	**CoN 09074**	**R**	**R**	HS
16	**CoSnk 05102**	**MR**	**R**	MR
17	**Co 0240**	**MR**	**RT**	MS
	CoC 671	**HS**	**S**	

Table 3.Identification of field tolerant clones in sugarcane to red rot

Sl No	Clone	Reaction to grain inoculum
1	Co 08006	X
2	Co 08018	X
3	Co 11015	X
4	2007-235	X
5	2009-039	X
6	2009-048	No germination
7	2009-065	X
8	2009-096	Y
9	2009-110	X
10	2009-139	X
11	2010-26	X
12	2010-41	Y
13	2010-51	Y
14	2010-73	Y
15	2010-117	Y