

TAMIL NADU AGRICULTURAL UNIVERSITY

From
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To
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Lucknow- 226 002

No.SRS/CDL/AICRP(S)/PATH/Annual Report /2012 dt. 24.06.2013

Sir,

Sub: Sugarcane research station, Cuddalore – AICRP on Sugarcane-Annual report-
Plant Pathology section for the year 2012-2013-regarding,

Ref: Letter No.F.No 18-2007/CPTN(Vol I)Dt17.06.2013 of the Project
Coordinator (Sugarcane) IISR, Lucknow

I enclose herewith the Annual report of AICRP on Sugarcane pertaining to Plant Pathology division of this centre for the period of 2012 -2013.Receipt of the same may please be acknowledged.

Professor and Head

Encl: Hard and soft copy of the AICRP(S) plant pathology Annual Report 2012-2013

Copy: to The Head, Plant Pathology, -AICRP on Sugarcane, Division of Crop Protection,
Sugarcane Breeding Institute, Coimbatore-641007.

ALL INDIA CO-ORDINATED RESEARCH REPORT ON SUGARCANE- PLANT PATHOLOGY

ANNUAL REPORT -2012

CENTRE: CUDDALORE (EAST COAST ZONE)

DISCIPLINE: PLANT PATHOLOGY

PP14: Identification of pathotypes/races in red rot pathogen

Location: Cuddalore (East Coast Zone)

During 2012 -2013 thirteen sugarcane differentials for red rot pathogen listed in the technical programme (AICRP- Sugarcane) viz., Co 419, Co 7717, Co 997, Co 1148, SES 594, Baragua, Co J 64, Bo 91, Co 975, Khakkai, Co 62399, Co S 767, Co S 8436 and CoC 671 were planted on 29.03.2012. The above differentials were inoculated with the isolates(collected from the different sugarcane varieties) along with references isolates and they were graded in the month of December 2012 and January 2013.

Isolates	Source	Co997	Co1148	Khakkai	CoJ64	Co62399	Co419	CO975	Co7717	CoC671	Baragua	CoS767	Bo91	SES594
Cf 04	Co419	X	S	S	S	R	S	S	S	S	R	R	R	R
Cf06	CoC671	S	X	X	S	R	R	X	R	S	S	R	R	R
Cf10	85A261	S	R	R	-	-	S	S	S	S	S	R	R	R
IsolateI	CoSi6	S	X	X	S	R	R	X	R	S	S	R	R	R
IsolateII	Co94025	X	S	S	S	R	S	S	S	S	R	R	R	R
IsolateIII	93V297	S	R	R	S	R	S	S	S	S	S	R	R	R
IsolateIV	Coc90063	S	X	X	S	R	R	X	R	S	S	R	R	R
IsolateV	CoC671	S	X	X	S	R	R	X	R	S	S	R	R	R
IsolateVI	CoV94101	X	S	S	S	R	S	S	S	S	R	R	R	R

R =Resistant

S = susceptible

X = Intermediate

During 2012 six isolates of *Colletotrichum falcatum* were tested. Results indicated that the Isolate I (CoSi6), Isolate IV (CoC90063), Isolate V (CoC671) behaved similar to Cf06, While the Isolates II (Co94025) and Isolate VI (CoV94101) were similar to Cf04. The Isolate III (93V297) was similar to Cf 10.

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

Location: Cuddalore

2012 -2013

Twenty five entries of IVT and AVT mid late entries along with three standards were planted on 29.03.2012 in 6 meters rows with 4 replications to screen them against red rot by plug and nodal method of inoculation. The above clones were inoculated with the cf04 and cf06 isolates of red rot pathogen during October, 2012 both by plug and nodal method of inoculation. The canes were graded in the month of December 2012.

RED ROT REACTION : 2012 – 2013 Plug method (Cf06)

s.no	Clones	Total Score	Grade	S.No	Clones	Total Score	Grade
1	CoV – 09- 356	3.0	MR	14	CoC – 09- 337	5.3	MS
2	CoC – 09 – 336	3.2	MR	15	CoV 92102	8.0	S
3	Pi – 09 -376	9.0	HS	16	Co 7219	7.0	S
4	Co 6907	8.8	HS	17	C260628	3.2	MR
5	CoC – 08 – 336	3.4	MR	18	C30007	7.6	S
6	CoC – 01 -061	5.6	MS	19	C30008	5.0	MS
7	CoA – 09 – 321	9.0	HS	20	C260329	6.1	MS
8	CoA – 08 – 323	6.0	MS	21	C260899	3.0	MR
9	CoA 92081	3.6	S	22	CoC 671	9.0	HS
10	Co 86032	5.6	MS	23	CoA– 07 – 322	5.0	MS
11	CoC 22	3.2	MR	24	Co 86249	1.4	R
12	Co – 06 – 031	7.6	S	25	CoA -07 - 321	7.2	S
13	CoC – 08 – 339	5.4	MS				

RED ROT REACTION : 2012 – 2013 Nodal method (Cf06)

s.no	Clones	Total Score	Grade	S.No	Clones	Total Score	Grade
1	CoV – 09- 356	2.3	MR	14	CoC – 09- 337	5.0	MS
2	CoC – 09 – 336	3.2	MR	15	CoV 92102	7.4	S
3	Pi – 09 -376	8.1	HS	16	Co 7219	6.9	S
4	Co 6907	8.2	HS	17	C260628	3.0	MR
5	CoC – 08 – 336	3.0	MR	18	C30007	7.0	S
6	CoC – 01 -061	5.0	MS	19	C30008	4.6	MS
7	CoA – 09 – 321	8.2	HS	20	C260329	5.0	MS
8	CoA – 08 – 323	5.6	MS	21	C260899	2.9	MR
9	CoA 92081	2.7	MR	22	CoC 671	9.0	HS
10	Co 86032	5.0	MS	23	CoA– 07 – 322	5.0	MS
11	CoC 22	3.0	MR	24	Co 86249	1.0	R
12	Co – 06 – 031	6.2	S	25	CoA -07 - 321	7.0	S
13	CoC – 08 – 339	4.2	MS				

RED ROT REACTION : 2012 – 2013 Plug method (Cf04)

s.no	Clones	Total Score	Grade	S.No	Clones	Total Score	Grade
1	CoV – 09- 356	2.8	MR	14	CoC – 09- 337	5.0	MS
2	CoC – 09 – 336	3.0	MR	15	CoV 92102	7.0	S
3	Pi – 09 -376	9.0	HS	16	Co 7219	7.2	S
4	Co 6907	8.0	HS	17	C260628	3.0	MR
5	CoC – 08 – 336	3.2	MR	18	C30007	7.0	S
6	CoC – 01 -061	5.3	MS	19	C30008	5.0	MS
7	CoA – 09 – 321	9.0	HS	20	C260329	5.0	MS
8	CoA – 08 – 323	6.0	MS	21	C260899	3.0	MR
9	CoA 92081	3.0	S	22	CoC 671	9.0	HS
10	Co 86032	5.3	MS	23	CoA– 07 – 322	5.0	MS
11	CoC 22	3.0	MR	24	Co 86249	1.0	R
12	Co – 06 – 031	7.0	S	25	CoA -07 - 321	7.4	S
13	CoC – 08 – 339	5.0	MS				

RED ROT REACTION : 2012 – 2013 Nodal method (Cf04)

s.no	Clones	Total Score	Grade	S.No	Clones	Total Score	Grade
1	CoV – 09- 356	1.8	R	14	CoC – 09- 337	4.6	MS
2	CoC – 09 – 336	2.0	R	15	CoV 92102	6.4	S
3	Pi – 09 -376	8.8	HS	16	Co 7219	6.1	S
4	Co 6907	8.0	HS	17	C260628	2.8	MR
5	CoC – 08 – 336	3.0	MR	18	C30007	6.2	S
6	CoC – 01 -061	5.0	MS	19	C30008	4.1	MS
7	CoA – 09 – 321	8.1	HS	20	C260329	5.5	MS
8	CoA – 08 – 323	5.6	MS	21	C260899	2.6	MR
9	CoA 92081	2.4	MR	22	CoC 671	8.2	HS
10	Co 86032	4.6	MS	23	CoA– 07 – 322	4.5	MS
11	CoC 22	2.4	MR	24	Co 86249	1.2	MR
12	Co – 06 – 031	7.0	S	25	CoA -07 - 321	7.0	S
13	CoC – 08 – 339	4.2	MS				

Eight clones viz, CoV – 09- 356, CoC – 09 – 336, CoC – 08 – 336, CoC 22, C260628, C260899 ,CoA92081and Co 86249 including resistant check showed MR reaction both in plug and nodal method of inoculation using cf06. CoV 09- 356 and CoC 09 – 336 clones showed “R” reaction in nodal method of inoculation using cf04.

PP.17b: Evaluation of Pre –Zonal/IET varieties and genotypes for resistance to smut (*Ustilago scitaminea*)

Location: Cuddalore

During this year, setts (three buds) of the Twenty five clones were steeped in freshly prepared smut spores suspension (90% viability) with a spore load of one million spores per milliliter for 30 minutes and planted on 29.03.2012. in a randomized block design with two replications. Smut incidence was recorded at fortnightly intervals from 35 DAP to till harvest. Number of smut affected clumps per row was recorded.

SMUT REACTION : 2012 - 2013

s.no	Clones	Cumulative incidence%	Grade	S.No	Clones	Total Score	Grade
1	CoV – 09- 356	11.20	MS	14	CoC – 09- 337	20.80	S
2	CoC – 09 - 336	8.51	MR	15	CoV 92102	5.70	MR
3	Pi – 09 -376	39.16	HS	16	Co 7219	14.75	MS
4	Co 6907	45.56	HS	17	C260628	21.50	S
5	CoC – 08 - 336	14.25	MS	18	C30007	27.05	S
6	CoC – 01 -061	32.0	HS	19	C30008	16.18	MS
7	CoA – 09 - 321	27.82	S	20	C260329	26.83	S
8	CoA – 08 - 323	-	R	21	C260899	15.56	MS
9	CoA 92081	2.30	MR	22	CoC 671	-	R
10	Co 86032	-	R	23	CoA– 07 – 322	35028	HS
11	CoC 22	12.5	MS	24	Co 86249	6.06	MR
12	Co – 06 – 031	15.12	MS	25	CoA -07 - 321	33.30	HS
13	CoC – 08 - 339	19.10	MS				

The clones viz., CoA – 08 - 323 , Co 86032 , , CoC 671 showed “R” reaction and CoC – 09 – 336, CoV 92102, Co 86249 showed “MR” reaction.

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

Location: Cuddalore

During this year, sugarcane disease survey has been conducted in the following sugar factory areas.

1. M/s E.I.D.Parry India., Ariyur, Pondicherry
2. M/s Chengalrayan Co-operative Sugar Mills Ltd, Periyasevali, Villupuram.
3. M/s Pondicherry Co-operative Sugar Mills Ltd., Lingareddipalayam, Pondicherry.

4. M/s MRK Co-operative Sugar Mills Ltd., Seithiathope
5. M/s Rajashree sugars Ltd., Mundiampakkam

E.I.D.Parry India., Ariyur, Pondicherry

S.No	Variety	Farmers holdings	Crop stage(Months)	Name of the disease	Incidence (per cent)
1	CoSi 94045	5	6-7 months	Red rot, YLD	25% 20%
2	CoC 22	4	8 months	Smut	10%
3	MC707	5	6 - 7 months	Smut	15%
4	Co87012	4	6-7 months	Red rot	15%

Chengalrayan Co-operative Sugar Mills Ltd, Periyasevali, Villupuram.

S.No	Variety	Farmers holdings	Crop stage(Months)	Name of the disease	Incidence (per cent)
1	CoSi 6	4	7 months	Red rot	20%
2	CoC22	8	8 months	Smut	10%
3	Co86032	5	7-8 months	Wilt, YLD	10% 25%
4	Co99004	5	6 - 7 months	Red rot	30%

Pondicherry Co-operative Sugar Mills Ltd., Lingareddipalayam.

S.No	Variety	Farmers holdings	Crop stage(Months)	Name of the disease	Incidence (per cent)
1	CoC 24	5	7 months	Wilt	10%
2	Co 86032	5	7 - 8months	Wilt	15%
3	MC 707	4	6 - 7 months	Smut	15%
4	CoSi 6	4	6 months	Red Rot	20%

MRK Co-operative Sugar Mills Ltd., Seithiathope

S.No	Variety	Farmers holdings	Crop stage(Months)	Name of the disease	Incidence (per cent)
1	CoSi6	7	6 - 7 months	Red rot	25%
2	Co99004	6	7 months	Sett rot	10%
3	CoC22	4	6-7 months	Smut	10%
4	Co86032	5	7 -8 months	YLD Wilt	15% 10%

Rajashree sugars Ltd., Munndiyampakkam.

S.No	Variety	Farmers holdings	Crop stage(Months)	Name of the disease	Incidence (per cent)
1	Co86032	5	6-7 months	YLD	30%
2	Co92102	5	6-7 months	Red rot	10%
3	CoSi6	8	7-8 months	Red rot	25%
4	MC707	4	7 months	Red rot Smut	20% 10%

The red rot incidence was noticed in Cosi6,MC707, Co92102, Co 99004 6 ranged from 10% to 30 %

PP 23. Assessment of elite and ISH genotypes for resistance to red rot.

Location: Cuddalore

The seed material was not available this year to take up the experiment.

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

Location: Cuddalore

During 2012 -2013 AVT entries and IVT entries (7 entries) along with standards were planted in 6 meters rows with two replications to screen them against red rot.

150 gm of grain inoculums/20 ft row was applied at the time of plant of planting.
Disease development was observed at monthly intervals.

S.No	Variety	Resistance Level(MR/S)	Symptoms observed followed by no of days	C.falcatum recovered (Yes/ No)	Anyother information
1	CoV- 09 -356	MS	SY(60),CR/LD	Y	-
2	Pi – 09 -376	HS	SM(90)SD/CD	Y	Disease appears in all clumps-
3	CoC -08 - 336	MS	SYCR/LD	Y	-
4	CoC - 01- 061	HS	LS,CD	Y	-
5	CoA 92081	MS	LS,CR/LD	Y	-
6	Co 86032	R	-	N	-
7	Co – 06 - 031	MS	LS,CR/LD	Y	-
8	Co 6907	HS	SY,SMCD	Y	Clumps dried
9	CoC 22	R	-	N	-