

# UNIVERSITY OF AGRICULTURAL SCIENCES, DHARWAD



Agricultural Research Station, Sankeshwar-591 314

Tq: Hukkeri, Dist: Belgaum

Phone: (08333) 273435

Email: [ars\\_sankeshwar@rediffmail.com](mailto:ars_sankeshwar@rediffmail.com)

---

No. ARSS /AICRP/PP/29/ / 2014-15

Dated: 14.03.2014

To,

DR. R.Viswanathan  
Head,  
Division of Crop Protection &  
Principal Investigator  
AICRP on Sugarcane (Plant Pathology)  
Coimbatore- 641 007 (T.N)

Sir,

**Sub:** Submission of Annual report of AICRP on sugarcane Plant Pathology,  
A.R.S., Sankeshwar (2013-14) reg....

With reference to the subject cited above, I am here with submitting the annual report of AICRP Sugarcane Plant Pathology, A.R.S., Sankeshwar for the year 2013-14 for your kind perusal and needful.

Thanking you Sir,

Yours faithfully,

(P.S. Tippannavar)  
I/C Pathologist  
ARS, Sankeshwar 591314

Copy submitted to: Dr. O.K.Sinha, Project Co-ordinator, AICRP on sugarcane, IISR,  
Lucknow - 226 002

**UNIVERSITY OF AGRICULTURAL SCIENCES  
DHARWAD**



**AGRICULTURAL RESEARCH STATION  
SANKESHWAR**

**ALL INDIA CO-ORDINATED RESEARCH  
PROJECT ON SUGARCANE**

**PLANT PATHOLOGY EXPERIMENTAL  
DATA 2013-14**

## C. PLANT PATHOLOGY

### ANNUAL REPORT OF AICRP ON SUGARCANE PLANT PATHOLOGY, ARS, SANKESHWAR, KARNATAKA

#### TITLE OF THE EXPERIMENT (PP 17): EVALUATION OF ZONAL VARIETIES FOR RESISTANCE TO WHIP SMUT

Year of start	:	1994-95
Design	:	RBD
Replications	:	2
Date of planting	:	<b>09.01.2013</b>
Plot size	:	0.9m x 3 m (row)

#### RESULTS:

IVT (Early)	:	The percent smut incidence under artificial inoculation condition indicated that out of seventeen entries screened none of the varieties were recorded resistant (R) reaction. However nine entries have recorded moderately resistant reaction (MR) as against susceptible reaction of check varieties viz., Co 8011 and Co 740 and six varieties including three check entries recorded moderately susceptible (MS) reaction.
IVT (Mid late)	:	Among the seventeen entries, including four check varieties tested for smut reaction under artificial conditions one entry viz., PI 10132 has recorded resistant (R) reaction and ten genotypes were found moderately resistant (MR) to smut disease. However the entry CoVSI 10121 has recorded susceptible (S) reaction along with check varieties viz., Co 740 and Co 8011.
AVT (Early) PC-II	:	Two entries were tested for smut reaction along with seven check entries, both the entries showed moderately susceptible (MS) reaction along with five check entries, as against susceptible (S) reaction of both Co 740 and Co 8011.
AVT (Mid late) PC-II	:	Nine entries including four check entries screened for smut reaction under artificial condition indicated that the two entries viz., Co 08020 and CoSnk 08101 were recorded moderately resistant (MR) reaction where as five entries (including two check entries) have recorded moderately susceptible (MS) reaction as against susceptible (S) reaction of Co 740 and Co 8011 respectively.

**Title of the Experiment (PP 22): Survey of sugarcane diseases naturally occurring in the area on important sugarcane varieties**

**Year of start: 1989-90**

**Results:**

The incidence of disease and their intensity on different varieties of sugarcane in Northern Karnataka is summarized in Table 2.

Results of survey conducted in Northern Karnataka during 2013-14 indicated that none of the variety is free from diseases. Among the foliar diseases rust is commonly observed on varieties viz., Co 86032, CoM 0265 , CoC 671, Co 2001-15, Co 8011, Co 94012 and Co 90101. However, YLD is appearing in almost all parts of Northern Karnataka especially on varieties such as Co 86032, Co 2001-15 followed by Co 94012, CoC 671 and Co 92005. Grassy shoot disease (GSD) is observed with higher percent incidence on Co 94012.

Smut is observed on Co 8011, Co 740 and Co 86032 during March to June month Pokkah boeng disease is observed during the month of March on all the sugarcane varieties and declined from July onwards.

**Table 1. Evaluation of zonal varieties for reaction against whip smut**

SL. NO	Genotypes	Smut *Reaction
<b>1</b>	<b>IVT (Early):</b>	
1	Co 10004	MR
2	Co 10005	MR
3	Co 10006	MR
4	Co 10024	MR
5	Co 10026	MR
6	Co 10027	MR
7	CoM 10081	MS
8	CoM 10082	MR
9	CoN 10071	MS
10	CoN 10072	MS
11	CoT 10366	MR
12	CoT 10367	MR
<b>Checks</b>		
13	Co 85004	MS
14	Co 94008	MS
15	CoC 671	MS
16	Co 740	S
17	Co 8011	S

\* Planting material not available

<b>2.</b>	<b>IVT (Midlate)</b>	
1	Co 10015	MR
2	* <b>Co 10017</b>	--
3	Co 10031	MR
4	Co 10033	MR
5	CoM 10083	MR
6	CoM 10084	MR
7	CoN 10073	MR
8	CoT 10368	MR
9	CoT 10369	MR
10	CoVC 10061	MR
11	CoVSI 10121	S
12	CoVSI 10122	MS
13	PI 10131	MR
14	PI 10132	R
<b>Checks</b>		
15	Co 86032	MS
16	Co 99004	MS
17	Co 740	S
18	Co 8011	S
<b>* Planting material not available</b>		

<b>3</b>	<b>AVT (Early) PC II:</b>	
1	Co 8001	MS
2	CoVSI 08121	MS
<b>Checks</b>		
3	Co 85004	MS
4	Co 94008	MS
5	CoC 671	MS
6	Co 94012	MS
7	CoSnk 044	MS
8	Co 740	S
9	Co 8011	S
<b>4</b>	<b>AVT (Midlate) PC II:</b>	
1	Co 08008	MS
2	Co 08009	MS
3	Co08016	MS
4	Co08020	MR
5	CoSnk 08101	MR
<b>Checks</b>		
6	Co 86032	MS
7	Co 99004	MS
8	Co 740	S
9	Co 8011	S

- \* 0 %: Resistant (R)
- >0-10%: Moderately Resistant (MR)
- >10-20%: Moderately Susceptible (MS)
- > 20-30%: Susceptible (S)
- > 30 %: HS

**Table 2: Evaluation of zonal varieties for resistance to whip smut**

Sl.No	Genotype	Smut reaction	
		% Incidence	Reaction
<b>IVT- Early</b>			
1	Co 10004	4.50	MR
2	Co 10005	6.33	MR
3	Co 10006	3.66	MR
4	Co 10024	9.55	MR
5	Co 10026	4.10	MR
6	Co 10027	8.70	MR
7	CoM 10081	21.20	S
8	CoM 10082	5.10	MR
9	CoN 10071	14.25	MS
10	CoN 10072	17.30	MS
11	CoT 10366	4.70	MR
12	CoT 10367	6.10	MR
<b>Checks</b>			
13	Co 85004	11.30	MS
14	Co 94008	10.85	MS
15	CoC 671	10.20	MS
16	Co 740	26.10	S
17	Co 8011	21.40	S
<b>IVT- Mid late</b>			
1	Co 10015	9.10	MR
2	<b>* Co 10017</b>	--	--
3	Co 10031	5.50	MR
4	Co 10033	8.10	MR
5	CoM 10083	4.55	MR
6	CoM 10084	6.20	MR
7	CoN 10073	4.10	MR
8	CoT 10368	5.50	MR
9	CoT 10369	6.80	MR
10	CoVC 10061	8.50	MR
11	CoVSI 10121	21.50	S
12	CoVSI 10122	11.70	MS
13	PI 10131	2.50	MR
14	PI 10132	0.0	R
<b>* Planting material not available</b>			
<b>Checks</b>			
15	Co 86032	11.15	MS
16	Co 99004	10.60	MS
17	Co 740	23.50	S
18	Co 8011	21.00	S

**\* Planting material not available**

Contd....

Sl.No	Genotype	Smut reaction	
		% Incidence	Reaction
<b>AVT (E) PC II</b>			
1	Co 8001	10.60	MS
2	CoVSI 08121	10.35	MS
<b>Checks</b>			
3	Co 85004	11.10	MS
4	Co 94008	13.40	MS
5	CoC 671	12.60	MS
6	Co 94012	11.15	MS
7	CoSnk 044	12.80	MS
8	Co 740	22.50	S
9	Co 8011	21.00	S
<b>AVT (M) PC II</b>			
1	Co 08008	10.65	MS
2	Co 08009	10.65	MS
3	Co08016	10.65	MS
4	Co08020	10.65	MR
5	CoSnk 08101	10.65	MR
<b>Checks</b>			
6	Co 86032	10.65	MS
7	Co 99004	12.80	MS
8	Co 740	23.50	S
9	Co 8011	20.70	S



**Table 3: Evaluation of zonal varieties for resistance to YLD**

Sl.No	Genotype	YLD reaction	
		Disease score	Reaction
<b>IVT- Early</b>			
1	Co 10004	< 1.0	R
2	Co 10005	< 1.0	R
3	Co 10006	< 1.0	R
4	Co 10024	< 1.0	R
5	Co 10026	< 1.0	R
6	Co 10027	< 1.0	R
7	CoM 10081	< 1.0	R
8	CoM 10082	< 1.0	R
9	CoN 10071	1.50	MR
10	CoN 10072	1.60	MR
11	CoT 10366	< 1.0	R
12	CoT 10367	< 1.0	R
<b>Checks</b>			
13	Co 85004	2.75	MS
14	Co 94008	1.90	MR
15	CoC 671	2.80	MS
16	Co 740	1.75	MR
17	Co 8011	2.85	MS
<b>IVT- Mid late</b>			
1	Co 10015	1.60	MR
2	<b>* Co 10017</b>	-	-
3	Co 10031	< 1.0	R
4	Co 10033	< 1.0	R
5	CoM 10083	< 1.0	R
6	CoM 10084	< 1.0	R
7	CoN 10073	< 1.0	R
8	CoT 10368	< 1.0	R
9	CoT 10369	< 1.0	R
10	CoVC 10061	< 1.0	R
11	CoVSI 10121	< 1.0	R
12	CoVSI 10122	< 1.0	R
13	PI 10131	< 1.0	R
14	PI 10132	< 1.0	R
<b>Checks</b>			
15	Co 86032	4.00	S
16	Co 99004	1.85	MR
17	Co 740	1.60	MR
18	Co 8011	3.00	MS

\* Planting varieties not available

Contd....

Sl.No	Genotype	YLD reaction	
		Disease score	Reaction
<b>AVT (E) PC II</b>			
<b>1</b>	Co 8001	1.30	MR
<b>2</b>	CoVSI 08121	1.70	MR
<b>Checks</b>			
<b>3</b>	Co 85004	3.00	MS
<b>4</b>	Co 94008	2.85	MR
<b>5</b>	CoC 671	2.90	MS
<b>6</b>	Co 94012	3.00	MS
<b>7</b>	CoSnk 044	1.40	MR
<b>8</b>	Co 740	1.65	MR
<b>9</b>	Co 8011	2.50	MS
<b>AVT (M) PC II</b>			
<b>1</b>	Co 08008	< 1.0	R
<b>2</b>	Co 08009	< 1.0	R
<b>3</b>	Co08016	< 1.0	R
<b>4</b>	Co08020	1.25	MR
<b>5</b>	CoSnk 08101	1.40	MR
<b>Checks</b>			
<b>6</b>	Co 86032	4.70	HS
<b>7</b>	Co 99004	2.00	MR
<b>8</b>	Co 740	1.70	MR
<b>9</b>	Co 8011	2.80	MS

**Table 4: Survey of Sugarcane diseases naturally occurring in the area on important Sugarcane varieties**

Sl. No	Disease	Name of area surveyed	Max % Disease incidence (clump basis)	No. Varieties affected	Crop stage when observed	any other information
1	2	3	4	5	6	7
1	Red Rot	Haveri Dist:Haveri	0	No variety affected	Grand growth and maturity stage	
		Mudhol Dist:Bagalkot	0	No variety affected	Grand growth and maturity stage	
		Kalaghatagi Dist: Dharwad	0	No variety affected	Grand growth and maturity stage	
		Bilagi Dist:Bagalkot	0	No variety affected	Grand growth and maturity stage	
		Garag Dist:Dharwad	0	No variety affected	Grand growth and maturity stage	
		Sankeshwar Dist:Belgaum	0	No variety affected	Grand growth and maturity stage	
		Kittur & Khanapur Dist:Belgaum	0	No variety affected	Grand growth and maturity stage	
2	Smut	Haveri Dist:Haveri	3.5	Co 86032 Co 8011	Grand growth stage	
		Mudhol Dist:Bagalkot	7.0	Co 8011 Co 86032 Co 94012	Grand growth stage	
		Kalaghatagi Dist: Dharwad	3.0	Co 740 Co 8011 Co 86032	Grand growth stage	
		Bilagi Dist:Bagalkot	4.5	Co 86032 Co 8011 CoC 671	Grand growth stage	
		Garag Dist:Dharwad	2.0	Co 86032 CoC 671	Grand growth stage	
		Sankeshwar Dist:Belgaum	3.0	Co 86032 Co 8011	Grand growth stage	
		Kittur Dist:Belgaum	7.5	Co 740 Co 86032	Grand growth stage	
		Khanapur Dist:Belgaum	9.0	Co 740 Co 86032	Grand growth stage	
3	Rust	Haveri, Dist:Haveri	6.0	Co 86032 CoC 671	Grand growth stage	
		Mudhol, Dist:Bagalkot	5.5	Co 86032 CoM 0265	Grand growth stage	
		Kalaghatagi, Dist: Dharwad	7.0	Co 86032 CoC 671	Grand growth stage	
		Bilagi, Dist:Bagalkot	6.5	CoC 671 Co 86032 CoM 0265	Grand growth stage	
		Garag, Dist:Dharwad	5.0	Co 86032 CoC 671	Grand growth stage	
		Sankeshwar, Dist:Belgaum	0	Co 8011 Co 86032	Grand growth stage	
		Kittur, Dist:Belgaum	0	CoM 0265 Co 86032	Grand growth stage	
4	Wilt	Haveri, Dist:Haveri	0	No wilt noticed	Grand growth stage	
		Mudhol, Dist:Bagalkot	0	No wilt noticed	Grand growth stage	
		Kalaghatagi, Dist: Dharwad	0	No wilt noticed	Grand growth stage	
		Bilagi, Dist:Bagalkot	0	No wilt noticed	Grand growth stage	
		Garag, Dist:Dharwad	0	No wilt noticed	Grand growth stage	
		Sankeshwar, Dist:Belgaum	0	No wilt noticed	Grand growth stage	
		Kittur, Dist:Belgaum	0	No wilt noticed	Grand growth stage	

5	RSD	Haveri, Dist:Haveri	0	Co 94012 CoC 671	Grand growth stage	
		Mudhol, Dist:Bagalkot	0	CoC 671	Grand growth stage	
		Kalaghatagi Dist: Dharwad	0	Co 86032	Grand growth stage	
		Bilagi Dist:Bagalkot	0	Co 94012 Co 86032	Grand growth stage	
		Garag Dist:Dharwad	0	CoC 671 Co 86032	Grand growth stage	
		Sankeshwar Dist:Belgaum	0	Co 94012 Co 86032	Grand growth stage	
		Kittur Dist:Belgaum	0	Co 86032	Grand growth stage	
6	GSD	Haveri, Dist:Haveri	0	CoC 671 Co 94012	Grand growth stage	
		Mudhol, Dist:Bagalkot	0	Co 94012 Co 86032	Grand growth stage	
		Kalaghatagi, Dist: Dharwad	0	Co 86032 Co 94012	Grand growth stage	
		Bilagi, Dist:Bagalkot	0	CoC 671	Grand growth stage	
		Garag, Dist:Dharwad	0	CoC 671 Co 86032	Grand growth stage	
		Sankeshwar, Dist:Belgaum	0	CoC 671 Co 94012	Grand growth stage	
		Kittur, Dist:Belgaum	0	Co 8011 Co 740	Grand growth stage	
7	YLD	Ugar, Dist. Belgaum	04	Co 86032	Grand growth stage	
		Chikodi, Dist. Belgaum	05	Co 86032	Grand growth stage	
		Sankeshwar, Dist. Belgaum	04 03	Co 86032 Co 2000-15	Grand growth stage	
		Hanagal, Dist. Haveri	04 02	Co 86032 CoC 671	Grand growth stage	
		Garag, Dist. Dharwad	04 02	Co 86032 CoC 671	Grand growth and maturity stage	
		Sameerwadi, Dist. Bagalkot	03 04	Co 2000-15 Co 86032	Grand growth and maturity stage	
		Jamkhandi, Dist. Bagalkot	03 04	Co 2000-15 Co 86032	Grand growth and maturity stage	
		Mudhol, Dist. Bagalkot	04 03	Co 86032 Co 2000-15	Grand growth and maturity stage	
8	Pokkah Boeng	Alanavar, Dist Dharwad	04 05	Co 86032 Co 94012	Grand growth and maturity stage	
		Garag, Dist Dharwad	04 02	Co 86032 CoC 671	Grand growth and maturity stage	
		Hukkeri - Bagewadi Dist. Belgaum	04 05 04	Co 8011 Co 86032 CoM 0265	Grand growth and maturity stage	
		Khanapur, Dist. Belgaum	04 06	Co 8011 Co 86032	Grand growth and maturity stage	
		Chikodi, Dist. Belgaum	04 02	Co 86032 CoM 0265	Grand growth and maturity stage	
		Athani, Dist. Belgaum	04 05 03	Co 8011 Co 86032 CoM 0265	Grand growth and maturity stage	

**PP 28(a) Management of rust in sugarcane**

Objective : To find out effective method of rust management through chemicals

Location : Agricultural Research Station, Sankeshwar

Year of start : 2013

Variety : CoM 0265

Date of planting : August 2013

**Trial is under progress & will be harvested during October 2014.**

**PP 28(b) Methodology for screening sugarcane genotypes for resistance to brown rust (*Puccinia melanocephala*)**

Among the two methods *viz.*, clip inoculation in leaf whorl and leaf whorl inoculation methods tested for rating the resistance against brown rust in sugarcane, leaf whorl inoculation method was found effective as compared to clip inoculation method for screening the sugarcane genotypes against brown rust resistance, by recording higher number of rust pustules per square inch and number of leaves bearing rust pustules.

Sl. No.	Inoculation method	Average no of pustules / inch <sup>2</sup> (Mean of 30 shoots or 10 clumps)	No. of leaves bearing rust pustules
1	Clip inoculation in leaf whorl	28.33	04
2	Leaf whorl inoculation	52.00	07