

JAWAHARLAL NEHRU KRISHI VISHWA VIDYALAYA
Zonal Agriculture Research Station
Powarkheda, Hoshangabad 461 001 (M.P.)

Pawan Kumar Amrate <i>Scientist – Plant Pathology</i> AICRP ON SUGARCANE		Tele - fax – 07574-227257 Mobile- 08224821863 Email: pawanamrate@gmail.com
No ZARS/Sugar/PP/2014/276/ADR/.....		Date: 10/06/2014

To,

Dr. R. Viswanathan, Head Division of Crop Protection &
Principle Investigator - AICRP on Sugarcane
Sugarcane Breeding Institute (ICAR),
COIMBATORE – 641 007 (Tamil Nadu)
E-mail: rasaviswanathan@yahoo.co.in

Through: Proper channel.

Sub: Annual Report of AICRP on Sugarcane –Plant Pathology for the year of 2013-14
Sir,

Please find enclosed herewith a copy of “Annual Report - 2013-14” of AICRP on sugarcane (Plant Pathology), ZARS, Powarkheda (M.P.) for compilation and necessary action.

Kindly acknowledge the same.

With regards,

Yours faithfully

(Pawan K. Amrate)

No ZARS/Sugar/PP/2014/277-279/ADR/.....

Dated: 10/06/2014

C.C to:

1. Dr. O. K. Sinha, Project Coordinator, AICRP on Sugarcane, Indian Institute of Sugarcane Research, P.O. Dilkusha, LUCKNOW- 226 002 (U. P.)
2. Director Research Services, J. N. K. V. V., Adhartal, Jabalpur (M.P.)
3. I/C AICRP on sugarcane, Z.A.R.S., Powarkheda - 461 001 (M.P.)

-for information & action please.

(Pawan K. Amrate)

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ANNUAL PROGRESS REPORT 2013-14

SUGARCANE-PLANT PATHOLOGY



**ALL INDIA COORDINATED RESEARCH PROJECT
ON SUGARCANE**



**JAWAHARLAL NEHRU KRISHI VISHWA VIDYALAYA
ZONAL AGRICULTURAL RESEARCH STATION
POWARKHEDA – 461 110 (M. P.)**

Annual Report of AICRP on Sugarcane Plant Pathology
For 2013- 2014

PP.17 (b): Evaluation of zonal varieties/genotypes for their resistance against smut disease

Objectives: To evaluate the entries of zonal varieties, AVT-I (E), AVT –II (E), AVT-I (ML) and AVT-II (ML) for their resistance to smut.

Plot size: Three meter long row planted with 10, three-bud setts with 2 replications.

Location: Zonal Agriculture Research Station, Powarkheda

Entries: All available entries (early and mid-late)

Inoculum: Freshly collected *Ustilago scitaminea* teliospores.

Inoculation: The method of inoculation consists of steeping of setts for 30 minutes in a spore suspension of over 90 % viability and with a spore load of one million spores per ml.

Observation: Incidence of smut was recorded as below:

0.0%	: Resistant (R)
More than 0.0 to 10%	: Moderately Resistant (MR)
More than 10 to 20%	: Moderately Susceptible (MS)
More than 20 to 30%	: Susceptible (S)
More than 30 %	: Highly Susceptible (HS)

Standards: Variety Co.7219 was used as check

Date of Planting: 16/02/2013

Year of Reporting: 2013 - 2014

Result:

Total twenty four, AVT II (two early and five mid-late) and IVT (eight early and nine mid-late) entries along with one check namely Co.7219 were planted for their reaction to smut disease. The per cent incidence of smut on different genotypes was recorded and presented in table 1 and 2. Among AVT, two entries i.e. Co 08001 (early) and Co 08016 (mid-late) exhibited resistance and other five entries showed moderate resistance. Among IVT, two entries i.e. Co 09004 and CoN 09072 were found to be resistant and others showed moderate resistance. The highest incidence of 11.2 per cent was observed from standard check.

PP.22: Survey of sugarcane diseases naturally occurring in this area on the important Sugarcane varieties.

Objectives: To gather information on the diseases naturally occurring in the area on the Sugarcane varieties for compiling an all India disease status report yearly.

Location: Zonal Agriculture Research Station, Powarkheda.

Year of Reporting: 2013-2014

Observations:

Survey of different sugarcane growing areas were undertaken to record the incidence of major diseases like smut, red rot, wilt, GSD, YLDS and Pokkah boeng. Diseases recorded along with area, variety and per cent incidence are given in Table no 3.

- 1. Smut:** The smut was continued as major sugarcane disease in the state and observed at almost all locations and on almost all varieties. The disease ranged in between 2 to 13 per cent at various locations. The variety, Co J 64 was found to be more susceptible as incidence was recorded from almost all the fields of Bankhedi and Kareli sugarcane growing area.
- 2. Wilt:** The incidence of wilt was increased as compared to previous years and observed at Betul, Kareli and Bankhedi sugarcane growing area. Up to 40 per cent incidence was recorded from some fields of Co J 64 at Bankhedi.
- 3. Grassy Shoot Disease:** The incidence of GSD ranged in between 1-8 per cent observed at Betul, Hoshangabad and Bankhedi sugarcane growing area on different varieties.
- 4. Yellow Leaf Disease Syndrome:** The YLDS was observed in very low or in traces at different locations.
- 5. Pokkah Boeng:** The disease was recorded from almost all the locations and incidence also increased in comparison to previous year. The highest incidence of 15-22 per cent was observed on Co 99004 at Hoshangabad.

Table 1. Reaction of different sugarcane early/mid late Advance Varietal Trial genotype against smut disease

S.N.	Group	Genotype/ Variety	Per cent Incidence	Grade
1	AVT- (E) II	Co 08001	0.0	R
2	AVT- (E) II	VSI 08121	3.1	MR
3	AVT (M) II	Co 08008	0.6	MR
4	AVT (M) II	Co 08009	2.4	MR
5	AVT (M) II	Co 08016	0.0	R
6	AVT (M) II	Co 08020	1.7	MR
7	AVT (M) II	Co Snk 08101	5.3	MR
8	Check	Co 7219	11.2	MS

Table 2. Reaction of different sugarcane early/mid late Initial Varietal Trial genotype against smut disease

S.N.	Group	Genotype/ Variety	Per cent Incidence	Grade
1	IVT (E)	Co 09002	0.8	MR
2	IVT (E)	Co 09003	2.1	MR
3	IVT (E)	Co 09004	0.0	R
4	IVT (E)	Co 09005	0.6	MR
5	IVT (E)	Co 09006	1.7	MR
6	IVT (E)	Co 09007	1.3	MR
7	IVT (E)	CoN 09071	4.2	MR
8	IVT (E)	CoN 09072	0.0	R
9	IVT (M)	Co 09009	1.3	MR
10	IVT (M)	Co 09010	2.1	MR
11	IVT (M)	Co 09012	0.5	MR
12	IVT (M)	Co 09013	0.8	MR
13	IVT (M)	Co 09014	1.9	MR
14	IVT (M)	Co 02040	3.5	MR
15	IVT (M)	CoN 09073	4.2	MR
16	IVT (M)	CoN 09074	0.7	MR
17	IVT (M)	CoSnk 05102	1.5	MR
18	Check	Co 7219	11.2	MS

Table 3. Incidence of naturally occurring diseases on sugarcane

S.N.	Disease	Name of area	Per cent Disease Incidence	Varieties/location	Stage of Crop(month)	Any other information
1	Smut	Hoshangabad	3-5	Co 86032	5-6 & 8-9 month	
			2-4	Co 99004		
			3-7	Co C 671		
			8-13	Co 7219		
		Bankhedi	2-4	Co 86032		
		6-9	Co J 64			
		5-6	Co 0238			
		Kareli	6-10	Co J 64		
			3-5	Co 94012		
		Gadarwara	8-9	Co M 265		
			3-4	Co 86032		
		Betul	2-4	Co 86032		
			3-7	Co 62175		
			2-5	Co C 671		
2	Wilt	Betul	0-15	Co 62175	8-9 month	
		Kareli	0-23	Co J 64		
		Bankhedi	0-40	Co J 64		
			0-12	Co C 671		
3	GSD	Hoshangabad	1-2	Co 86032	7-8 month	
			2-3	Co 7219		
			1-3	Co C 671		
		Betul	5-6	Co 62175		
			1-2	Co 86032		
	1-2	Co C 671				
		Bankhedi	1-3	Co 86032		
			2-5,	Co C 671		
			5-8	Co J 64		
4	YLDS	Hoshangabad	1-3	Co 99004	7-8 month	
			traces	Co 86032		
		Betul	traces	Co C 671		
		Bankhedi,	1-2	Co 86032		
			1-3	Co J 64		
5	Pokkah Boeng	Hoshangabad	15-22,	Co 99004	7-8 month	
			9-16,	Co 86032		
			7-15	Co C 671		
			7-9	Co 7219		
			1-3	Co JN 86-141		
			6-8	Co 85004		
		Kareli	6-9	CoSnk 3632		
			3-7	Co 86032		
			9-12	Co 99004		
		Bankhedi	8-11	Co 0238		
	6-10	Co 86032				
Gadarwara	5-8	Co 86032				
	10-12	Co M 265				
Betul	2-5	Co 86032				
	1-4	Co C 671				

Note - In Bankhedi sugarcane growing area, one of the variety Co 1008/unknown was badly affected by top rotting (10-15 per cent).