PART I

Table A: Weekly Weather data for the year 2014 recorded at Meteorological Observatory Department of Agronomy Dr. PDKV., Akola

Weeks	Dates	T MAX (°C) T Min		BSH (hrs) WS (km/hr)		RH I (%) RH II (%)		Evap (mm)	RF(mm)	CRF (mm)	Rainy days
		A	A	A	A	A	A	A	A		A
1	1-7 Jan	29.0	13.0	4.8	1.0	80	31	4.4	0.0	0.0	0.0
2	8-14	28.5	13.9	4.6	2.3	80	34	3.7	0.0	0.0	0.0
3	15-21	29.2	15.8	3.4	2.0	76	33	4.7	0.4	0.4	0.0
4	22-28	28.9	14.5	3.3	1.9	81	31	4.2	0.0	0.4	0.0
5	29-4 Feb	30.0	11.0	8.4	1.7	59	16	5.2	0.0	0.4	0.0
6	5-11	31.9	14.0	7.6	1.7	60	20	5.3	0.0	0.4	0.0
7	12-18	29.4	12.7	7.4	2.3	64	24	6.7	0.0	0.4	0.0
8	19-25	31.7	16.2	5.9	2.0	64	29	6.2	2.0	2.4	0.0
9	26-4 Mar	30.2	15.3	7.5	2.8	76	25	5.7	34.7	37.1	3.0
10	5-11	28.9	16.5	6.0	3.1	83	29	4.4	8.6	45.7	2.0
11	12-18	35.3	18.9	8.7	2.2	70	16	6.5	7.9	53.6	1.0
12	19-25	37.8	20.0	8.7	2.8	43	11	9.7	0.0	53.6	0.0
13	26-1 Apr	39.8	23.7	8.0	2.8	35	11	9.5	0.0	53.6	0.0
14	2-8 Apr	39.9	22.2	8.0	3.1	30	9	10.2	0.0	53.6	0.0
15	9-15	39.3	21.8	7.5	3.5	38	10	10.6	0.0	53.6	0.0
16	16-22	40.4	23.8	8.2	3.5	52	22	10.7	4.2	57.8	1.0
17	23-29	41.5	24.2	8.7	3.8	38	11	12.7	0.0	57.8	0.0
18	30- 6 May	42.6	25.5	8.3	3.2	38	11	11.7	6.4	64.2	1.0
19	7-13	39.3	25.8	6.6	6.4	56	21	10.8	0.8	65.0	0.0
20	14-20	41.2	26.5	7.5	5.1	46	21	11.7	0.0	65.0	0.0
21	21-27	43.3	27.2	7.2	6.7	47	16	13.1	3.2	68.2	0.0
22	28-3 Jun	43.6	28.3	8.3	7.1	48	21	11.8	4.5	72.7	1.0
23	4-10	43.0	29.6	6.5	10.9	49	26	16.6	0.0	72.7	0.0
24	11-17	39.3	25.3	8.5	10.4	66	28	13.2	22.5	95.2	2.0
25	18-24	37.2	26.8	4.7	14.6	63	31	14.3	1.5	96.7	0.0
26	25-1Jul	38.2	26.8	5.2	15.0	61	31	14.3	1.7	98.4	0.0
27	2-8	36.4	26.3	4.1	12.5	74	44	11.9	1.4	99.8	0.0
28	9-15	35.1	24.7	2.8	10.0	84	51	6.8	48.6	148.4	1.0
29	16-22	30.7	23.9	1.5	8.8	88	70	3.8	45.8	194.2	6.0
30	23-29	28.2	22.6	1.2	11.4	90	68	4.7	194.2	388.4	3.0

Weeks	Dates	T MAX (°C)	T Min	BSH (hrs)	WS (km /hr)	RH I (%)	RH II (%)	Evap (mm)	RF (mm)	CRF (mm)	Rainy days
31	30-5 Aug	31.6	24.2	3.2	7.6	89	66	6.0	16.4	404.8	1.0
32	6-12	32.2	23.6	5.9	11.9	87	48	8.3	13.7	418.5	2.0
33	13-19	33.6	23.6	6.9	9.5	89	46	7.1	6.9	425.4	2.0
34	20-26	33.8	23.6	5.6	1.9	92	57	4.1	28.9	454.3	4.0
35	27-2 Sep	29.1	22.4	2.1	4.1	94	81	5.0	73.6	527.9	5.0
36	3-9	28.8	22.7	3.3	8.7	93	65	7.0	109.2	637.1	3.0
37	10-16	30.3	22.6	4.2	7.3	88	65	5.7	0.7	637.8	0.0
38	17-23	32.5	23.1	6.0	6.4	90	56	5.2	0.5	638.3	0.0
39	24-30	34.5	20.7	8.5	1.0	81	37	4.2	2.0	640.3	0.0
40	1-7 Oct	36.5	21.1	7.4	1.4	73	29	5.2	0.0	640.3	0.0
41	8-14	36.8	20.9	5.6	1.7	66	26	5.4	0.0	640.3	0.0
42	15-21	34.5	21.8	5.6	1.4	76	37	5.6	0.0	640.3	0.0
43	22-28	31.9	18.0	4.3	1.1	77	37	4.0	0.0	640.3	0.0
44	29-4 Nov	33.8	15.9	7.9	1.3	68	21	4.7	0.0	640.3	0.0
45	5-11	33.5	16.6	6.5	1.4	69	28	5.2	0.0	640.3	0.0
46	12-18	30.0	20.4	3.2	2.2	87	46	3.5	20.1	660.4	2.0
47	19-25	31.7	12.9	7.4	0.9	72	16	4.2	0.0	660.4	0.0
48	26-2 Dec	32.2	12.4	7.2	0.6	75	15	3.6	0.0	660.4	0.0
49	3-9	30.8	10.9	8.3	0.9	73	18	4.4	0.0	660.4	0.0
50	10-16	29.5	14.4	4.7	1.5	74	33	4.6	0.9	661.3	0.0
51	17-23	26.4	6.9	8.3	1.6	71	16	5.0	0.0	661.3	0.0
52	24-31	28.6	8.3	8.6	1.5	69	16	5.2	0.0	661.3	0.0
				TOTAL RFJanuary to Dec					661.3		40
				Total RFJune to Dec					593.1		32

Experiment No. 1

General Information

600	Project code	-	AICRP PP-1
601.1	Name of Research Station	-	Sugarcane Research Centre, Dr.P.D.K.V., Akola.
601.2	Location of Project	-	Sugarcane Research Centre, Dr.P.D.K.V., Akola.
602	Project title	-	**Evaluation of zonal varieties for resistant to major diseases in Initial Varietal Trial, Early.**
602.1	Theme	-	Integrated pest and disease management
603.1	Research approach	-	Applied research
604	Specific area	-	Host Plant resistance
605	Duration of project	-	One year
605.1	Date of start	-	2013-14
605.3	Period for which report submitted	-	2014-15

Part II Investigation Profile

610	**Principal Investigator**	**-**	
610.1	Name	-	Dr. G. K. Lande
610.2	Designation	-	Assistant Professor
610.5	Address	-	Sugarcane Research Centre, Dr.P.D.K.V., Akola.
611	**Co-Investigator**	**-**	
611.1	Name	-	Dr. N. K. Patke
611.2	Designation	-	Senior Research Scientist
611.3	Department	-	Sugarcane Research Centre, Dr.P.D.K.V., Akola.
611.4	Location	-	Akola
611.5	Address	-	Sugarcane Research Centre, Dr.P.D.K.V., Akola.
612	**Co-Investigator**	**-**	
612.1	Name	-	Shri. P.K.Paulkar
612.2	Designation	-	Senior Research Assistant
612.3	Department	-	Sugarcane Research Centre, Dr.P.D.K.V., Akola.
612.4	Location	-	Akola
612.5	Address	-	Sugarcane Research Centre, Dr.P.D.K.V., Akola.

Part III Technical Details

620	Introduction and Objectives	-	
620.1	Immediate objectives	-	To study the sugarcane varieties for their reaction towards major diseases
620.3	Specific objectives	-	To find out diseases resistant sources
621	Project technical profile	-	

621 Project technical profile

621.1 Technical details

1. Progressive year - First (2014-15)

2. Design - Randomized Block Design
3. Replication - Three
4. Plot size - 6.00x 4.50m^2
5. Spacing - 90 cm row to row
6. Fertilizer - 175 kg N + 100 kg P_2O_5 + 100 kg K_2O ha^{-1}
7 Date of planting - **02/01/14**
8 Date of harvesting - **18/01/15**
9 Treatments :Sixteen varieties

1. Co11001	2. Co11004	3. Co11016	4. Co11017
5. Co11018	6. CoM11081	7. CoM11082	8. CoM11083
9. CoM11084	10. CoN11071	11. CoN11072	12. CoT11366
13. PI 11131	14. Co85004 (C)	15. Co94008 (C)	16. CoC 671 (C)

10 Method of observations As per experiment No. 1

Table 1: Per cent disease incidence of Grassy Shoot, Pokkah boeng, Mosaic and Smut disease in IVT Early

Sr. No.	Genotypes	% Grassy Shoot incidence	Grade	% Pokkah boeng incidence	Grade	% Mosaic. incidence	Grade	%Smut incidence	Grade
1	Co11001	0.00	HR	1.21	R	0.00	HR	0.00	R
2	Co11004	0.00	HR	0.97	R	0.00	HR	0.00	R
3	Co11016	0.00	HR	1.40	R	0.00	HR	0.00	R
4	Co11017	0.00	HR	4.62	R	0.77	R	0.00	R
5	Co11018	0.00	HR	5.23	MS	0.58	R	0.00	R
6	CoM11081	0.39	R	1.92	R	0.58	R	2.13	MR
7	CoM11082	0.00	HR	5.20	MS	0.87	R	7.59	MR
8	CoM11083	0.00	HR	1.56	R	0.22	R	14.89	MS
9	CoM11084	0.00	HR	0.87	R	1.30	MR	0.43	MR
10	CoN11071	0.00	HR	0.93	R	0.93	R	0.00	R
11	CoN11072	0.00	HR	0.63	R	1.25	MR	0.00	R
12	CoT11366	0.00	HR	3.17	R	1.32	MR	0.00	R
13	PI11131	0.00	HR	1.18	R	0.89	R	0.00	R
14	Co85004 (C)	0.00	HR	0.63	R	0.00	HR	0.00	R
15	Co94008 (C)	0.42	R	1.61	R	0.00	HR	0.00	R
16	CoC671 (C)	0.00	HR	0.00	R	0.00	HR	0.00	R

Results : Data presented in Table 2 revealed that
The incidence of Pokkah boeng disease was ranging from 0.63 to 5.23 %. Co11018 showed highest (5.23 %) disease incidence. Grassy shoot disease incidence was in range of 0.39 % to 0.42%. It was highest in Co94008 (C).The Mosaic disease incidence was ranging from 0.22 % to 1.32 %. CoT11366 showed highest (1.32 %) disease incidence. The incidence of yellow leaf disease was 0.00 % .the incidence of Smut disease was in range of 0.43% to 14.89% and was highest in CoM11083 i.e.14.89%

Grassy shoot Sugarcane Varieties Co 11001, Co 11004, Co 11016, Co11017, Co11018, CoM11082, CoM11083, CoM11084, CoN11071, CoN11072, CoT11366, PI11131, Co85004 (C) and CoC671(C) recorded highly resistance reaction against GSD showing no disease incidence. Whereas, CoM11081 and Co94008 (C) recorded resistance reaction against grassy shoot disease.

Pokkah Boeng In case of Pokkah boeng varieties Co 11001, Co 11004, Co 11016, Co11017, CoM11081, CoM11083, CoM11084, CoN11071, CoN11072, CoT11366, PI11131, Co85004 (C), CoC671(C) and Co94008 (C) showed resistance reaction against Pokkah boeng disease. Whereas Co11018 and CoM11082 showed moderately susceptible reaction.

Mosaic Sugarcane varieties Co11001, Co11004, Co11016, Co85004 (C), Co94008 (C), CoC 671 (C) recorded Highly resistance reaction whereas, Co11017, Co11018, CoM 11081, CoM 11082, PI11131, CoM11083 showed resistance reaction and CoM11084, CoN11072 and CoT11366 varieties showed Moderately resistance reaction against mosaic disease.

Smut Sugarcane varieties Co 11001, Co 11004, Co 11016, Co11017, Co11018, CoN11071, CoN11072, CoT11366, PI11131, Co85004 (C), CoC671(C) and Co94008 (C) showed resistance reaction, whereas, CoM 11081, CoM 11082 and CoM11084 showed moderately resistance and CoM11083 showed moderately susceptible reaction against smut disease.

622.4 Utility of results obtained so far

The resistant varieties will be utilized in resistant breeding programme in future

Experiment No 2

General Information

600	Project code	-	AICRP PP17
601.1	Name of Research Station	-	Sugarcane Research Centre, Dr. P. D.K.V., Akola.
601.2	Location of Project	-	Sugarcane Research Centre, Dr. P. D.K.V., Akola.
602	Project title	-	**Evaluation of zonal varieties for their reaction against major diseases of sugarcane in IVT Midlate**
602.1	Theme	-	Integrated pest and disease management
603.1	Research approach	-	Applied research
604	Specific area	-	Host Plant resistance
605	Duration of project	-	One year
605.1	Date of start	-	2013-14
605.3	Period for which report submitted	-	2014-15

Part II Investigation Profile

610	**Principal Investigator**	**-**	
610.1	Name	-	Dr. G. K. Lande
610.2	Designation	-	Assistant Professor
610.5	Address	-	Sugarcane Research Centre, Dr.P.D.K.V., Akola.
611	**Co-Investigator**	**-**	
611.1	Name	-	Dr. N. K. Patke
611.2	Designation	-	Senior Research Scientist
611.3	Department	-	Sugarcane Research Centre, Dr.P.D.K.V., Akola.
611.4	Location	-	Akola
611.5	Address	-	Sugarcane Research Centre, Dr.P.D.K.V., Akola.
612	**Co-Investigator**	**-**	
612.1	Name	-	Shri. P. K. Paulkar
612.2	Designation	-	Senior Research Assistant
612.3	Department	-	Sugarcane Research Centre, Dr.P.D.K.V., Akola.
612.4	Location	-	Akola
612.5	Address	-	Sugarcane Research Centre, Dr.P.D.K.V., Akola.

Part III Technical Details

620	**Introduction and Objectives**		
620.1	Immediate objectives	-	To screen the sugarcane varieties in AICRP Trials for their reactions to major diseases.
620.3	Specific objectives	-	To find out diseases resistant sources
621	**Project technical profile**		
621.1	Technical details		

1. Progressive year - First (2014-2015)
2. Design - Randomized Block Design
3. Replication - Three
4. Plot size - 6.00 x 4.50 m^2
5. Spacing - 90 cm row to row
6. Fertilizer - 175 kg N + 100 kg P_2O_5 + 100 kg K_2O ha^{-1}
7. Date of planting - 30/12/2013
8. Date of harvesting - 18-01-2015
9. Treatment : Sixteen Genotypes

1. Co11005	2. Co11007	3. Co11012	4. Co11019
5. Co11020	6 Co11021	7. Co11022	8. Co11023
9. Co11024	10. CoM11085	11. CoM11086	12. CoM11087
13. CoN11073	14. CoN11074	15. Co86032©	16. Co99004©

Observations recorded

As per experiment No 1

Table 2: Per cent disease incidence of Grassy Shoot, Pokkah boeng, Mosaic and Smut disease in IVT Midlate

Sr. No.	Genotypes	% Grassy Shoot incidence	Grade	% Pokkah boeng incidence	Grade	%Mosaic incidence	Grade	%Smut	Grade
1	Co 11005	0.00	HR	2.25	R	0.00	HR	0.00	R
2	Co 11007	0.00	HR	1.31	R	0.00	HR	0.00	R
3	Co 11012	0.00	HR	2.22	R	0.00	HR	0.00	R
4	Co 11019	0.00	HR	3.11	R	0.00	HR	0.00	R
5	Co11020	0.00	HR	8.56	MS	0.00	HR	0.00	R
6	Co11021	0.00	HR	4.00	R	0.00	HR	0.00	R
7	Co11022	0.68	R	4.11	R	1.71	MR	0.00	R
8	Co11023	0.00	HR	1.59	R	0.91	R	0.00	R
9	Co11024	0.00	HR	4.78	R	0.24	R	0.00	R
10	CoM11085	0.00	HR	2.52	R	0.00	HR	0.00	R
11	CoM11086	0.21	R	0.83	R	0.83	R	0.00	R
12	CoM11087	0.00	HR	1.85	R	0.00	HR	0.00	R
13	CoN11073	0.00	HR	1.08	R	0.43	R	0.00	R
14	CoN11074	0.00	HR	5.51	MS	0.00	HR	0.37	MR
15	Co 86032 (C)	0.00	HR	0.83	R	0.00	HR	0.00	R
16	Co99004 (C)	0.00	HR	3.22	R	0.00	HR	0.00	R

Results : Data presented in Table 3 revealed that
The incidence of Pokkah boeng disease was ranging from 0.83 to 8.56%. Co11020 showed highest (8.56 %) disease incidence. Grassy shoot disease incidence was in range of 0.21 % to 0.68%. It was highest in Co11022. i.e. 0.68%. The Mosaic disease incidence was ranging from 0.24 % to 1.71 % . Co11022 showed highest (1.71 %) disease incidence. The incidence of yellow leaf disease was 0.00 % .the incidence of Smut disease was 0.37% in CoN11074.

Grassy shoot Sugarcane Varieties Co 11005, Co 11007, Co 11012, Co 11019, Co 11020, Co 11021, Co 11023, Co 11024, CoM11085, CoM11087, CoN11073, CoN11074, Co 86032 (C) and Co99004 (C) showed highly resistant reaction against grassy shoot disease. Whereas, Co11022 and CoM11086 showed resistant reaction.

Pokkah Boeng Sugarcane Varieties Co11020 and CoN11074 showed moderately susceptible reaction against pokkah boeng disease. Remaining genotypes showed resistance reaction against pokkah boeng disease.

Mosaic Varieties Co11023, Co11024, CoM11086, CoN11073 showed Resistant reaction and remaining varieties showed highly resistant reaction.

Smut Varieties CoN11074 showed Moderately resistant reaction and remaining varieties showed resistant reaction against smut disease.

622.4 Utility of results obtained so far

The resistant varieties will be utilized in resistant breeding programme in future

Experiment No 3

General Information

600	Project code	-	AICRP PP-17
601.1	Name of Research Station	-	Sugarcane Research Centre, Dr.P.D.K.V., Akola.
601.2	Location of Project	-	Sugarcane Research Centre, Dr.P.D.K.V., Akola.
602	Project title	-	**Evaluation of zonal varieties / genotypes for their reaction against major diseases of sugarcane in Advance Varietal Trial Early I Plant**
602.1	Theme	-	Integrated Pest and diseases management
603.1	Research approach	-	Applied research
604	Specific area	-	Host plant resistance
605	Duration of project	-	One year
605.1	Date of start	-	2013-14
605.3	Period for which report submitted	-	2014-2015

Part II Investigation Profile

610	**Principal Investigator**	**-**	
610.1	Name	-	Dr. G. K. Lande
610.2	Designation	-	Assistant Professor
610.5	Address	-	Sugarcane Research Centre, Dr.P.D.K.V., Akola.
611	**Co-Investigator**	**-**	
611.1	Name	-	Dr. N. K. Patke
611.2	Designation	-	Senior Research Scientist
611.3	Department	-	Sugarcane Research Centre, Dr.P.D.K.V., Akola.
611.4	Location	-	Akola
611.5	Address	-	Sugarcane Research Centre, Dr.P.D.K.V., Akola.
612	**Co-Investigator**	**-**	
612.1	Name	-	Shri. P. K. Paulkar
612.2	Designation	-	Senior Research Assistant
612.3	Department	-	Sugarcane Research Centre, Dr.P.D.K.V., Akola.
612.4	Location	-	Akola
612.5	Address	-	Sugarcane Research Centre, Dr.P.D.K.V., Akola.

Part III Technical Details

620	**Introduction and Objectives**		
620.1	Immediate objectives	-	To screen the sugarcane varieties in AICRP Trials for their reactions to major diseases.
620.3	Specific objectives	-	To find out diseases resistant sources
621	**Project technical profile**		
621.1	Technical details		

1. Progressive year - First (2014-2015)
2. Design - Randomized Block Design
3. Replication - Three
4. Plot size - 6.00 x 4.50 m^2
5. Spacing - 90 cm row to row
6. Fertilizer - 175 kg N + 100 kg P_2O_5 + 100 kg K_2O ha^{-1}
7. Date of Planting - 21-12-2013
8. Date of harvesting - 22-01-2015
9. Treatments : Six genotypes
   1) Co 09004
   2) CoN 09072
   3) Co 94008 (C)
   4) Co09007
   5) Co85004 (C)
   6) CoC 671 (C)

Observations to be recorded

As per experiment No 1.

Table 3: Per cent disease incidence of Grassy Shoot, Pokkah boeng and yellow leaf disease in AVT Midlate I Plant

Sr. No.	Genotypes	% Grassy Shoot incidence	Grade	% Pokkah boeng incidence	Grade	% Yellow leaf dis. incidence	Grade	%Mosaic Disease	Grade
1	Co09004	0.00	HR	1.19	R	0.00		0.14	R
2	Co09007	0.00	HR	2.47	R	0.00		0.00	HR
3	CoN09072	0.00	HR	1.81	R	0.12		0.00	HR
4	Co85004 (C)	0.00	HR	1.88	R	0.12		0.00	HR
5	Co94008(C)	0.00	HR	2.38	R	0.42		0.42	HR
6	CoC 671 (C)	0.00	HR	0.00	R	0.00		0.00	HR

Results : Data presented in Table 4 revealed that
The incidence of Pokkah boeng disease was ranging from 1.19 to 2.47 %. Co 09007 showed highest (2.47 %) disease incidence. Grassy shoot disease incidence was 0.00 %. The Mosaic disease incidence was ranging from 0.14 % to 0.42 %. Co94008 showed highest (0.42 %) disease incidence. The incidence of yellow leaf disease was ranging from 0.12 to 0.42 % .Co94008 showed highest (0.42 %) disease incidence

Grassy shoot Sugarcane Variety Co 99004, Co09007, CoN09072, Co85004 (C), Co94008 (C) CoC671 (C) showed highly resistant reaction against grassy shoot disease.

Pokkah Boeng Sugarcane Varieties Co 09004, Co09007, CoN09072, Co85004 (C), Co94008 (C) CoC671 (C) resistance reaction against Pokkah boeng disease.

Yellow leaf disease The varieties CoN09072, Co85004 (C) and Co94008(C) showed less incidence of yellow leaf disease.

Mosaic Varieties Co09004 showed resistant reaction and Co09007, CoN09072, Co85004 (C), Co94008 (C) and CoC671 (C) showed highly resistant reaction against mosaic disease.

622.4 Utility of results obtained so far

The resistant varieties will be utilized in resistant breeding programme in future

PART II

List of On going and new projects to be undertaken during 2015-16.

Project Code	Title of the Projects / Experiments
PP-1	Evaluation of zonal varieties for their reaction against major diseases of sugarcane in IVT Early Plant
PP-2	Evaluation of zonal varieties for their reaction against major diseases of sugarcane in AVT Early I Plant
PP-3	Evaluation of zonal varieties for their reaction against major diseases of sugarcane in AVT Early II Plant
PP-4	Evaluation of zonal varieties for their reaction against major diseases of sugarcane in IVT Midlate Plant
PP-5	Evaluation of zonal varieties for their reaction against major diseases of sugarcane in AVT Midlate I Plant