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KERALA AGRICULTURAL UNIVERSITY
Sugarcane Research Station, Kallungal .P.O., Thiruvalla 689 102

No. SRS II/287/07

Dated:20.06.2012

From,
Professor and Head

To,
Dr. O.K.Sinha,
Project Coordinator,
AICRP on Sugarcane,
Indian Institute of Sugarcane Research,
LUCKNOW- 226 002, U.P.

Sir,
Sub:- KAU-SRS- Thiruvalla- AICRP ON Sugarcane – Annual report 2011-12-reg

I am forwarding herewith two copies of the Annual Report of the AICRP (S) (Crop Improvement, Crop Production and Plant Pathology) experiments conducted at this station for the year 2011 -12 for necessary action. The reports of Crop Improvement, Crop Production and Plant Pathology have been already sent to the respective PIs. This is for favour of your kind information.

Yours faithfully

Professor and Head

KERALA AGRICULTURAL UNIVERSITY



AICRP ON SUGARCANE

Annual Report
2011 – 2012

Sugarcane Research Station, Kallungal
Thiruvalla, Kerala – 689102

Staff Position

Discipline	Post/ Designation	Number of sanctioned post	Name of the incumbent	Remarks
Plant Breeding	Assistant Professor	1	Dr. Beena Thomas	
Plant Pathology	Assistant Professor	1	Dr. Sajeena	
Agronomy	Professor	1	Dr. Abraham Varghese	Up to 22-8-2011
	Assistant Professor		Smt.Bindhu.J.S.	From 22-8-2011
	1. Farm Officer. Gr.II	1	Sri.Georgy Joseph Vacant	Upto 31-8-2011 Vacant
	2. Lab. Assistant	1	Vacant	Vacant
	3. Technical Officer Gr.II	1	Sri.Jayakumar.G. Sri.Hirosh Kumar.K.S. Vacant	Upto 16-8-2011 1-9-2011 to 31-3-2012 Vacant

Crop Improvement

KERALA AGRICULTURAL UNIVERSITY
Sugarcane Research Station

Annual Progress Report of Research for 2011-2012

1. Co-ordination group : 06 Commercial crops
2. Project : Evolving red rot resistant varieties for sugarcane and standardization of agro techniques for selected varieties.
3. Sub project : Nil
4. Title : Initial Varietal Trial – Early
5. Principal Investigator : Dr. Beena Thomas, Assistant Professor (Plant Breeding)
6. Associates : Smt.Bindhu.J.S., Assistant Professor (Agronomy)
:Dr.Sajeena.A., Assistant Professor (Plant Pathology)
7. Objective : To assess the comparative performance of varieties recommended by AICRP workshop to select superior varieties suited to Kerala.
8. (a) Technical Programme :
- No of test genotypes : 5
 - No of Standard varieties : 3
 - Design : Randomized Block design
 - Replication : Three
 - Plot size : 6 m x 8 row x 90 cm
- Test genotypes : Co 08001, Co 08006, Co N 08071, PI 08131, VSI 08121
- Check varieties : CoC 671, Co 94008, Co 85004

(b) Phase to be covered during the period under report: Initial Varietal Trial.

9. Deviation in the technical programme : Nil

10. Results:

CCS t/ha: Standard Co 85004 recorded highest CCS of 11.20 t/ha which is on par with standard CoC 671 (10.90 t/ha) and clone Co 08001 (10.64 t/ha).

Yield t/ha: Clone VSI 08121 recorded highest yield of 96.17 t/ha which is on par with standards Co 85004 (94.69 t/ha), CoC 671(94.45 t/ha) and clone PI 08131 (94.32 t/ha) and significantly superior to other clones and standard Co 94008.

Brix %: Clone Co 08001 recorded highest Brix of 21.20 % which is on par with standard Co 85004 (20.93 %) and clones Co 08006 (20.0 %) and VSI 08121 (20.27%) and significantly superior to standard Co 85004.

Sucrose %: Clone Co 08001 recorded highest sucrose of 17.85 % which is on par with standards CoC 671 (16.85 %) and Co 85004 (17.54 %) and clones Co 08006 (16.73 %) and VSI 08121 (16.86 %) and significantly superior to standards Co 85004 and Co C 671.

CCS %: Clone Co 08001 recorded highest CCS of 12.05 % which is on par with standard CoC 671 (11.56 %), Co 85004 (11.82 %) and clone VSI 08121 (11.31 %) and Co 08006 (11.26 %) and significantly superior to standards Co 85004 and CoC 671.

11. Remarks: Nil

Signature of the Principal Investigator

Signature of Head of Station

1. Initial Varietal Trial (Early)

S. No.	Clone	CCS t/ha	Cane yield t/ha	Brix % (10 m)	Sucrose % (10m)	Purity % (10m)	CCS % (10m)	Pol % cane (10m)	Extraction % (10m)	Fibre % (10m)	NMC at 10m ('000/ha)
1	Co 08001	10.64	88.15	21.20	17.85	83.49	12.05		63.26		100.74
2	Co 08006	8.78	78.03	20.00	16.73	83.03	11.26		65.72		90.25
3	CoN 08071	8.40	90.25	16.90	13.93	81.78	9.30		59.49		101.23
4	PI 08131	9.86	94.32	17.87	15.34	85.12	10.46		63.44		107.90
5	VSI 08121	10.83	96.17	20.27	16.86	82.27	11.31		55.63		114.32
Stds											
1	CoC 671	10.90	94.45	19.40	16.85	86.07	11.56		55.57		109.50
2	Co 94008	9.22	84.69	18.90	16.07	84.22	10.91		53.63		95.56
3	Co 85004	11.20	94.69	20.93	17.54	83.08	11.82		56.28		110.62
	CD	1.107	9.435	1.668	1.433	NS	1.129		5.265		8.565
	CV	7.720	7.32	5.97	6.08	4.05	7.08		6.19		5.74

S. No.	Clone	Stalk Length (m)	Stalk Diameter (cm)	Single cane weight (kg)	Brix % (8 m)	Sucrose % (8 m)	Purity % (8 m)	CCS % (8 m)	No. of shoots ('000/ha) 240 days	No. of tillers ('000/ha) 120 days	Germination % (30 days)
1	Co 08001	196	3.01	1.239	18.30	14.84	80.32	9.83	102.84	104.94	48.59
2	Co 08006	174	2.83	0.989	17.00	13.78	80.31	9.11	93.58	96.79	79.55
3	CoN 08071	212	3.41	1.472	14.27	11.93	82.85	8.02	103.46	105.43	58.30
4	PI 08131	218	3.06	1.333	15.27	12.14	78.77	7.95	110.49	112.59	48.07
5	VSI 08121	203	2.87	1.228	17.50	14.60	82.36	9.81	116.17	118.64	35.26
Stds											
1	CoC 671	214	2.93	1.406	16.93	14.42	84.34	9.79	110.62	112.47	44.45
2	Co 94008	251	3.03	1.472	16.30	13.61	82.57	9.15	98.52	100.86	55.26
3	Co 85004	223	2.93	1.256	18.00	15.09	83.02	10.16	113.70	115.43	79.18
	CD	16.3	0.208	0.1761	1.86	1.45	NS	1.059	8.434	8.251	6.213
	Cv	5.37	4.77	9.43	6.79	6.4	3.8	6.99	5.53	5.29	7.7

KERALA AGRICULTURAL UNIVERSITY
Sugarcane Research Station

Annual Progress Report of Research for 2011-2012

1. Co-ordination group : 06 Commercial crops
2. Project : Evolving red rot resistant varieties for sugarcane and standardization of agro techniques for selected varieties.
3. Sub project : Nil
4. Title : Advanced Varietal Trial – Early I Plant
5. Principal Investigator : Dr. Beena Thomas, Assistant Professor (Plant Breeding)
6. Associates :Smt.Bindhu.J.S., Assistant Professor (Agronomy)
:Dr.Sajeena.A., Assistant Professor (Plant Pathology)
7. Objective : To assess the comparative performance of varieties recommended by AICRP workshop to select superior varieties suited to Kerala.
8. (a) Technical Programme :
- No of test genotypes : 4
 - No of Standard varieties : 3
 - Design : Randomized Block design
 - Replication : Three
 - Plot size : 6 m x 8 row x 90 cm
- Test genotypes : Co 07012, Co 07015, CoN 07071, PI 07131
- Check varieties : CoC 671, Co 94008, Co 85004
- (b) Phase to be covered during the period under report: Advanced Varietal Trial.
(1st plant crop)

9. Deviation in the technical programme: Nil

10. Results:

CCS t/ha : Clone Co 07012 recorded highest CCS of 12.10 t/ha which is on par with standards Co 85004 (11.876 t/ha) and CoC 671 (12.04 t/ha).

Yield t/ha: Standard Co 85004 recorded highest yield of 94.82 t/ha which is on par with standard CoC 671 (86.20 t/ha) and clone Co 07012 (90.74 t /ha)

Brix %: Standard CoC 671 recorded highest Brix of 21.77 % which is on par with all other standards and clones except one.

Sucrose %: Clone Co 07015 (19.97 %) recorded highest sucrose of 19.89 % which is on par with Standard CoC 671 (19.89 %) and clone Co 07012 (19.01 %) and significantly superior to other clones and standards Co 85004 and Co 94008.

CCS %: Clone Co 07015 recorded highest CCS of 14.04 % which is on par with standard CoC 671 (13.98 %) and significantly superior other clones and standards Co 85004 and Co 94008.

11. Remarks: Nil

Signature of the Principal Investigator

Signature of Head of Station

2. Advanced Varietal Trial (Early – I Plant)

S. No.	Clone	CCS t/ha	Cane yield t/ha	Brix % (10 m)	Sucrose % (10m)	Purity % (10m)	CCS % (10m)	Pol % cane (10m)	Extraction % (10m)	Fibre % (10m)	NMC at 10m ('000/ha)
1	Co 07012	12.10	90.74	20.83	19.01	90.48	13.35		63.06		98.56
2	Co 07015	9.57	68.15	21.83	19.97	90.73	14.04		60.64		80.37
3	CoN 07071	6.28	53.70	18.20	16.64	90.54	11.69		59.73		63.15
4	PI 07131	9.45	71.85	20.50	18.72	90.52	13.15		62.13		80.74
Stds											
1	CoC 671	12.04	86.20	21.77	19.89	90.65	13.98		62.83		98.98
2	Co 94008	10.36	80.55	20.20	18.34	90.01	12.85		62.18		87.48
3	Co 85004	11.86	94.82	19.60	17.82	90.09	12.49		57.55		99.26
	CD	1.52	8.79	1.065	0.971	NS	0.68		NS		9.83
	CV	9.03	7.75	3.18	3.18	0.31	3.08		6.54		7.77

S. No.	Clone	Stalk Length (m)	Stalk Diameter (cm)	Single cane weight (kg)	Brix % (8 m)	Sucrose % (8 m)	Purity % (8 m)	CCS % (8 m)	No. of shoots ('000/ha) 240 days	No. of tillers ('000/ha) 120 days	Germination % (30 days)
1	Co 07012	192	3.0	1.172	16.37	14.39	87.01	9.93	103.24	107.59	64.83
2	Co 07015	238	2.8	1.233	17.47	15.07	85.41	10.30	82.96	85.55	56.89
3	CoN 07071	161	2.8	0.961	17.10	15.03	86.96	10.36	66.39	69.72	43.28
4	PI 07131	251	3.1	1.534	17.67	15.54	87.11	10.72	85.46	90.37	39.89
Stds											
1	CoC 671	209	3.1	1.400	18.77	16.53	87.26	11.41	102.41	105.74	47.72
2	Co 94008	226	2.9	1.239	16.33	14.24	86.26	9.78	91.48	94.72	36.39
3	Co 85004	204	2.6	1.050	17.17	14.92	86.03	10.24	108.24	117.04	49.44
	CD	10.700	0.12	0.130	1.160	0.841	NS	0.544	9.28	8.99	5.44
	CV	3.46	2.83	7.50	4.10	3.39	1.24	3.190	6.98	6.45	7.74

KERALA AGRICULTURAL UNIVERSITY
Sugarcane Research Station

Annual Progress Report of Research for 2011-2012

1. Co-ordination group : 06 Commercial crops
2. Project : Evolving red rot resistant varieties for sugarcane and standardization of agro techniques for selected varieties.
3. Sub project : Nil
4. Title : Advanced Varietal Trial – Early II Plant and Ratoon
5. Principal Investigator : Dr. Beena Thomas, Assistant Professor (Plant Breeding)
6. Associates :Smt.Bindhu.J.S., Assistant Professor (Agronomy)
:Dr.Sajeena.A., Assistant Professor (Plant Pathology)
7. Objective : To assess the comparative performance of varieties recommended by AICRP workshop to select superior varieties suited to Kerala.
8. (a) Technical Programme :
No of test genotypes : 4
No of Standard varieties : 3
Design : Randomized Block design
Replication : Three
Plot size : 6 m x 8 row x 90 cm
- Test genotypes : Co 06001, Co 06002, Co 06022, PI 06132
- Check varieties : CoC 671, Co 94008, Co 85004
- (b) Phase to be covered during the period under report: Advanced Varietal Trial.
(IInd plant crop and ratoon)
9. Deviation in the technical programme : Nil

10. Results:

IInd plant crop

CCS t/ha: Clone Co 06022 recorded highest CCS of 13.86 t/ha which is on par with standard CoC 671 (12.89 t/ha) and Co 06011 (12.81 t/ha) and significantly superior to other clones and standard Co 85004 and Co 94008.

Yield t/ha: Clone Co 06022 recorded highest cane yield of 100.92 t/ha and significantly superior to all standards and other clones .

Brix %: Clone Co 06002 recorded highest brix of 22.43 % which is on par with standard CoC 671 (21.73 %) and four other clones.

Sucrose %: Clone Co 06002 recorded highest sucrose of 20.14 % which is on par with standard CoC 671 (19.75 %) and Clones Co 06022 (19.65 %) , PI 06132 (19.64 %) and significantly superior to standards Co 94008 , Co 85004 and other clones.

CCS %: Clone Co 06002 recorded highest CCS % of 14.02 % which is on par with standard CoC 671 (13.89 %) and Clones Co 06022 (13.67 %) , PI 06132 (13.68 %) , Co 06001 (13.25 %) and significantly superior to standards Co 94008 , Co 85004 and other clones.

Advanced Varietal Trial (Ratoon)

CCS t/ha: Standard Co 85004 recorded highest CCS of 11.17 t/ha which is on par with clone Co 06022 (10.05 t/ha) and significantly superior to all the standards and other clones.

Yield t/ha: Standard Co 85004 recorded highest cane yield of 83.89 t/ha and significantly superior to all the standards and other clones .

Brix %: No significant difference was observed for the clones and maximum brix is recorded by Standard Co 85004 (21.37 %) which is on par with all other standards and all the clones.

Sucrose %: No significant difference was observed for the clones and maximum sucrose % is recorded by Standard CoC 671 (19.39 %) which is on par with all other standards and all the clones.

CCS %: No significant difference was observed for the clones and maximum CCS % is recorded by standard CoC 671 (19.39 %) which is on par with all other standards and all the clones.

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11. Remarks: Nil

Signature of the Principal Investigator

Signature of Head of Station

3. Advanced Varietal Trial (Early – II Plant)

S. No.	Clone	CCS t/ha	Cane yield t/ha	Brix % (10 m)	Sucrose % (10m)	Purity % (10m)	CCS % (10m)	Pol % cane (10m)	Extraction % (10m)	Fibre % (10m)	NMC at 10m ('000/ha)
1	Co 06001	12.81	97.31	20.43	18.72	90.80	13.25		54.11		104.72
2	Co 06002	12.59	89.72	22.43	20.14	89.10	14.02		59.31		98.33
3	Co 06022	13.86	100.92	21.70	19.65	89.83	13.67		60.36		104.82
4	PI 06132	12.47	91.30	21.97	19.64	88.80	13.68		58.55		101.76
Std											
1	CoC 671	12.89	93.15	21.73	19.75	90.13	13.89		55.44		105.09
2	Co 94008	11.42	95.00	18.67	17.09	90.67	12.22		55.87		99.17
3	Co 85004	12.58	98.05	20.00	18.27	90.57	12.60		58.75		104.63
	CD	NS	6.473	1.86	1.489	NS	1.018		NS		NS
	CV	5.94	4.15	5.36	4.789	1.45	4.854		6.69		4.85

S. No.	Clone	Stalk Length (m)	Stalk Diameter (cm)	Single cane weight (kg)	Brix % (8 m)	Sucrose % (8 m)	Purity % (8 m)	CCS % (8 m)	No. of shoots ('000/ha) 240 days	No. of tillers ('000/ha) 120 days	Germination % (30 days)
1	Co 06001	228	3.06	1.483	17.10	15.02	86.87	10.35	109.81	113.43	47.78
2	Co 06002	216	2.66	1.022	18.97	16.75	87.43	11.58	101.39	103.43	74.34
3	Co 06022	230	3.09	1.505	18.20	16.15	87.83	11.19	109.17	111.02	66.28
4	PI 06132	189	2.81	1.067	18.80	16.60	87.47	11.47	104.54	107.22	55.56
Std											
1	CoC 671	206	3.17	1.378	18.47	16.30	87.40	11.27	107.41	109.81	47.94
2	Co 94008	220	2.88	1.305	14.97	13.17	86.97	9.09	100.74	102.22	56.94
3	Co 85004	223	2.89	1.289	16.43	14.50	87.30	10.02	111.30	113.33	69.22
	CD	10.870	0.130	0.153	1.727	1.602	NS	1.114	NS	6.44	7.706
	CV	3.46	3.13	8.27	5.990	6.30	0.67	6.450	4.18	4.07	7.86

4. Advanced Varietal Trial (Early – Ratoon)

S. No.	Clone	CCS t/ha	Cane yield t/ha	Brix % (270d)	Sucrose % (270d)	Purity % (270d)	CCS % (270d)	Pol % cane (270d)	Extracti on % (270d)	Fibre % (270d)	NMC at (270d) ('000/ha)
1	Co 06001	9.13	68.15	21.00	19.09	90.16	13.38		60.79		76.94
2	Co 06002	9.63	73.61	20.50	18.64	90.12	13.06		61.74		84.18
3	Co 06022	10.05	76.48	20.50	18.72	90.53	13.15		61.24		87.41
4	PI 06132	8.70	64.72	21.03	19.16	90.34	13.44		59.82		76.39
Std											
1	CoC 671	9.86	72.31	21.17	19.39	90.83	13.63		59.44		82.13
2	Co 94008	9.48	71.94	20.67	18.80	90.18	13.18		59.03		83.35
3	Co 85004	11.17	83.89	21.37	19.13	88.90	13.31		62.82		94.35
	CD	1.141	4.453	1.77	1.360	NS	0.90		NS		6.51
	CV	7.15	4.19	5.16	4.360	1.39	4.130		4.89		4.75

S. No.	Clone	Stalk Length (m)	Stalk Diameter (cm)	Single cane weight (kg)	No. of shoots ('000/ha) 180 days	No. of tillers ('000/ha) 90 days
1	Co 06001	262	2.89	1.278		81.34
2	Co 06002	275	2.72	1.222		89.47
3	Co 06022	255	2.80	1.201		92.54
4	PI 06132	198	2.65	1.011		82.22
Std						
1	CoC 671	227	2.78	1.217		87.03
2	Co 94008	262	2.89	1.100		89.39
3	Co 85004	249	2.80	1.239		99.25
	CD	11.680	NS	NS		6.32
	CV	3.25	5.930	8.960		4.34

KERALA AGRICULTURAL UNIVERSITY
Sugarcane Research Station

Annual Progress Report of Research for 2010-2011

1. Co-ordination group : 06 Commercial crops
2. Project : Evolving red rot resistant varieties for sugarcane and standardization of agro techniques for selected varieties.
3. Sub project : Nil
4. Title : Initial Varietal Trial – Midlate
5. Principal Investigator : Dr. Beena Thomas, Assistant Professor (Plant Breeding)
6. Associates : Smt. Bindhu. J.S., Assistant Professor (Agronomy)
: Dr. Sajeena. A., Assistant Professor (Plant Pathology)
7. Objective : To assess the comparative performance of varieties recommended by AICRP workshop to select superior varieties suited to Kerala.
8. (a) Technical Programme :
 No of test genotypes : 18
 No of Standard varieties : Two
 Design : Randomized Block design
 Replication : Three
 Plot size : 6 m x 6 row x 90 cm
Test genotypes : Co 08007, Co 08008, Co 08009, Co 08016, Co 08018, Co 08019, Co 08020, CoJn 08091, CoM 08081, CoN 08072, CoR 08141, CoSnk 08101, CoVC 08061, CoVC 08062, CoVC 08063, CoVC 08064, CoVSI 08122, CoVSI 08123

Check varieties : Co 86032, Co 99004

(b) Phase to be covered during the period under report: Initial Varietal Trial.

9. Deviation in the technical programme : Nil

10. Results:

CCS t/ha: Standard Co 86032 recorded highest CCS of 14.93 t/ha and on par with clones Co 08008 (13.92 t/ha), Co 08016 (13.93 t/ha), CoVC 08064 (14.35 t/ha) and CoVSI 08123 (13.92 t/ha) and significantly superior to all other clones and standards.

Yield t/ha: Clone Co VSI 08123 recorded highest yield of 107.87 t/ha and on par with eight other clones and both standards and significantly superior to other clones and standards.

Brix %: Clone Co 08009 recorded highest brix of 22.63 % and on par with clone Co 08008 (21.57 %), and standard Co 86032 (21.73 %) and significantly superior to other clones and standard Co 99004.

Sucrose %: Clone Co 08009 recorded highest sucrose of 20.22 % and on par with clone Co 08008 (19.59 %), standard Co 86032 (19.88 %), clone Co 08020 (19.49 %) and significantly superior to other clones and standard Co 99004.

CCS %: Clone Co 08009 recorded highest CCS of 14.07 % and on par with standard Co 86032 (13.97 %), clone Co 08008 (13.73 %), clone Co 08016 (13.43%) , Co 08020 (13.69 %) and Co VC 08064 (13.65 %) and significantly superior to other clones and standard Co 99004.

11. Remarks: Nil

Signature of the Principal Investigator

Signature of Head of Station

5. Initial Varietal Trial (Midlate)

S. No.	Clone	CCS t/ha	Cane yield t/ha	Brix % (12 m)	Sucrose % (12 m)	Purity % (12 m)	CCS % (12 m)	Pol % cane (12m)	Extracti on % (12 m)	Fibre % (12 m)	NMC at 12 m ('000/ha)
1	Co 08007	12.76	99.54	20.17	18.27	89.87	mean		51.72		110.25
2	Co 08008	13.92	101.39	21.57	19.59	90.13	12.79		63.58		131.24
3	Co 08009	9.18	65.28	22.63	20.22	88.80	13.73		52.91		115.19
4	Co 08016	13.93	103.70	21.03	19.15	90.27	14.07		59.51		141.85
5	Co 08018	8.19	64.81	19.77	17.97	90.13	13.43		56.22		108.64
6	Co 08019	13.36	102.78	20.33	18.50	90.27	12.60		61.86		140.12
7	Co 08020	12.93	94.44	21.33	19.49	90.60	12.98		56.59		106.05
8	CoVc 08061	11.64	101.85	18.07	16.34	89.63	13.69		59.49		103.58
9	CoVc 08062	10.93	88.89	19.30	17.54	90.00	11.43		61.29		98.52
10	CoVc 08063	10.93	97.22	17.60	16.03	90.17	12.29		55.65		110.49
11	CoVc 08064	7.35	62.50	18.40	16.71	89.93	11.25		61.82		97.78
12	CoN 08072	12.08	101.85	18.67	16.93	89.90	11.71		62.86		134.69
13	CoM 08081	11.34	94.91	18.90	17.08	89.60	11.86		61.61		89.38
14	CoJn 08091	12.50	96.76	20.23	18.42	90.33	11.94		56.09		140.00
15	CoSnk 08101	11.96	106.48	17.63	16.03	90.07	12.92		60.04		131.24
16	CoVSI 08122	14.35	105.19	20.60	19.25	92.63	11.24		57.15		126.54
17	CoVSI 08123	11.68	89.35	20.23	18.57	91.00	13.65		61.18		104.69
18	CoR 08141	13.92	107.87	20.30	18.41	89.90	13.07		58.48		110.86
Stds											
1	Co 86032	14.93	106.94	21.73	19.88	90.67	12.89		61.71		130.74
2	Co 99004	12.37	100.93	18.60	17.32	92.30	13.97		59.11		110.99
	CD	1.559	10.026	1.136	1.065	1.405	0.772		NS		10.221
	CV	7.91	6.46	3.49	3.59	0.95	3.71		7.01		5.32

S. No.	Clone	Stalk Length (m)	Stalk Diameter (cm)	Single cane weight (kg)	Brix % (10 m)	Sucrose % (10 m)	Purity % (10 m)	CCS % (10 m)	No. of shoots ('000/ha) 240 days	No. of tillers ('000/ha) 120 days	Germination % (30 days)
1	Co 08007	245.00	3.02	1.28	16.87	14.17	83.14	9.55	102.84	113.70	76.59
2	Co 08008	255.00	3.03	1.39	18.27	15.55	84.44	10.56	124.81	133.09	78.59
3	Co 08009	236.67	2.71	1.19	19.93	17.01	84.58	11.56	110.37	118.27	48.00
4	Co 08016	224.67	2.47	1.05	18.67	15.90	84.38	10.80	138.15	144.32	65.56
5	Co 08018	205.67	2.94	1.02	17.57	14.86	83.82	10.06	103.58	110.99	49.18
6	Co 08019	226.33	2.76	1.15	17.07	14.16	82.21	9.49	136.92	143.33	74.00
7	Co 08020	221.00	3.12	1.29	18.30	15.18	82.14	10.17	101.61	108.64	52.15
8	CoVc 08061	218.00	3.11	1.26	15.57	13.13	83.31	8.87	97.16	106.17	57.11
9	CoVc 08062	274.33	3.23	1.31	17.00	14.29	83.29	9.64	95.56	100.87	50.59
10	CoVc 08063	238.33	2.93	1.19	15.40	13.16	84.39	8.95	108.03	113.33	52.07
11	CoVc 08064	232.67	3.09	1.28	17.00	14.31	83.36	9.66	90.86	100.00	50.44
12	CoN 08072	224.33	3.05	1.41	17.17	14.55	83.88	9.86	127.53	137.53	75.55
13	CoM 08081	265.67	3.44	1.89	15.47	12.89	82.42	8.66	84.44	92.22	49.55
14	CoJn 08091	240.00	3.01	1.26	18.17	15.31	83.55	10.35	131.60	143.09	74.30
15	CoSnk 08101	245.33	2.97	1.25	15.87	13.50	84.15	9.16	127.78	132.96	69.48
16	CoVSI 08122	248.33	2.80	1.15	18.10	15.57	85.30	10.63	123.58	128.64	68.15
17	CoVSI 08123	227.67	3.27	1.32	17.50	14.86	84.04	10.08	99.76	107.90	48.59
18	CoR 08141	213.67	3.36	1.52	17.97	15.08	83.09	10.17	105.80	113.46	60.07
Stds											
1	Co 86032	261.33	3.29	1.61	19.40	16.34	83.46	11.03	126.54	132.47	58.37
2	Co 99004	275.67	3.16	1.72	17.17	14.42	83.15	9.73	104.32	112.72	57.78
	CD	11.932	0.144	0.112	1.146	0.963	NS	0.826	15.112	10.177	9.122
	CV	3.04	2.89	5.16	4.01	3.99	3.51	5.06	8.22	5.18	9.14

KERALA AGRICULTURAL UNIVERSITY
Sugarcane Research Station

Annual Progress Report of Research for 2010-2011

1. Co-ordination group : 06 Commercial crops
2. Project : Evolving red rot resistant varieties for sugarcane and standardization of agro techniques for selected varieties.
3. Sub project : Nil
4. Title : Advanced Varietal Trial – Midlate I Plant
5. Principal Investigator : Dr. Beena Thomas, Assistant Professor (Plant Breeding)
6. Associates :Smt.Bindhu.J.S., Assistant Professor (Agronomy)
:Dr.Sajeena.A., Assistant Professor (Plant Pathology)
7. Objective : To assess the comparative performance of varieties recommended by AICRP workshop to select superior varieties suited to Kerala.
8. (a) Technical Programme :
- No of test genotypes :6
- No of Standard varieties : Two
- Design : Randomized Block design
- Replication : Three
- Plot size : 6 m x 8 row x 90 cm
- Test genotypes : Co 07006, Co 07007, Co 07008, Co 07009, Co 07010,
Co Snk 07103
- Check varieties : Co 86032 Co 99004

(b) Phase to be covered during the period under report: Advanced Varietal Trial.
(Ist plant crop)

9. Deviation in the technical programme : Nil

10. Results:

CCS t/ha : Standard Co 86032 recorded highest CCS of 16.75 t/ha and on par with Clone Co 07008(15.41 t/ha) and significantly superior to all other clones and standards.

Yield t/ha: Clone Co 07008 recorded highest yield of 125 t/ha and on par with standard Co 86032 (120.28 t/ha) and significantly superior to all other clones and standards.

Brix %: Standard Co 86032 recorded highest brix of 21.93 % and significantly superior to other clones and standard Co 99004.

CCS %: Standard Co 86032 recorded highest CCS of 13.93 % and on par with clone Co 07007 (13.06%) and significantly superior to other clones

Sucrose %: Standard Co 86032 recorded highest sucrose of 19.89 % and significantly superior to other clones and standard Co 99004.

11. Remarks: Nil

Signature of the Principal Investigator

Signature of Head of Station

5. Advanced Varietal Trial (Midlate – I Plant)

S. No.	Clone	CCS t/ha	Cane yield t/ha	Brix % (12 m)	Sucrose % (12 m)	Purity % (12 m)	CCS % (12 m)	Pol % cane (12m)	Extraction % (12 m)	Fibre % (12 m)	NMC at 12 m ('000/ha)
1	Co 07006	10.97	90.28	18.97	17.31	90.40	12.15		61.56		104.54
2	Co 07007	14.01	107.22	20.27	18.57	90.80	13.06		61.95		121.20
3	Co 07008	15.41	125.00	19.17	17.53	90.60	12.32		65.39		138.24
4	Co 07009	9.61	83.33	17.77	16.33	91.07	11.51		62.06		94.26
5	Co 07010	11.93	109.44	16.90	15.51	90.83	10.92		59.01		122.04
6	CoSnk 07103	9.97	85.00	18.13	16.64	90.90	11.71		65.35		99.81
Stds											
1	Co 86032	16.75	120.28	21.93	19.89	89.93	13.93		64.11		131.85
2	Co 99004	10.60	90.83	18.03	16.56	90.90	11.66		64.07		101.85
	CD	1.519	8.975	1.385	1.231	NS	0.86		NS		9.943
	CV	7.46	5.39	4.46	4.34	0.64	4.32		5.71		5.30

S. No.	Clone	Stalk Length (m)	Stalk Diameter (cm)	Single cane weight (kg)	Brix % (10 m)	Sucrose % (10 m)	Purity % (10 m)	CCS % (10 m)	No. of shoots ('000/ha) 240 days	No. of tillers ('000/ha) 120 days	Germination % (30 days)
1	Co 07006	196	2.86	1.222	15.73	13.95	87.67	9.67	112.59	120.56	45.17
2	Co 07007	202	2.96	1.256	17.20	15.26	87.80	10.57	128.89	136.48	49.50
3	Co 07008	213	3.01	1.450	16.03	14.20	87.53	9.83	144.91	151.57	46.44
4	Co 07009	205	3.04	1.306	14.60	12.88	87.23	8.90	102.32	110.28	48.50
5	Co 07010	249	2.47	1.183	13.47	11.79	86.37	8.12	130.00	137.87	58.11
6	CoSnk 07103	202	2.66	1.139	15.00	13.19	86.83	9.09	107.04	114.35	47.39
Stds											
1	Co 86032	245	2.98	1.583	18.80	16.51	87.03	11.39	138.80	146.11	47.56
2	Co 99004	222	3.28	1.717	14.80	13.21	88.17	9.17	109.26	116.76	61.66
	CD	9.577	0.195	0.271	1.387	1.184	1.472	0.817	9.202	7.714	7.271
	CV	2.70	4.09	12.18	5.38	5.20	1.03	5.19	4.61	3.64	8.77

KERALA AGRICULTURAL UNIVERSITY
Sugarcane Research Station

Annual Progress Report of Research for 2010-2011

1. Co-ordination group : 06 Commercial crops
2. Project : Evolving red rot resistant varieties for sugarcane and standardization of agro techniques for selected varieties.
3. Sub project : Nil
4. Title : Advanced Varietal Trial – Midlate II Plant and Ratoon
5. Principal Investigator : Dr. Beena Thomas, Assistant Professor (Plant Breeding)
6. Associates :Smt.Bindhu.J.S., Assistant Professor (Agronomy)
:Dr.Sajeena.A., Assistant Professor (Plant Pathology)
7. Objective : To assess the comparative performance of varieties recommended by AICRP workshop to select superior varieties suited to Kerala.
8. (a) Technical Programme :
- No of test genotypes : 11
 - No of Standard varieties : Two
 - Design : Randomized Block design
 - Replication : Three
 - Plot size : 6 m x 8 row x 90 cm
- Test genotypes : Co 06007, Co 06010, Co 06012, Co 06013, Co 06014, Co 06015, Co 06020, Co 06027, CoM 06082, CoM 06084, CoSnk 03632
- Check varieties : Co 86032 Co 99004
- (b) Phase to be covered during the period under report: Advanced Varietal Trial.
(IInd plant crop and ratoon crop)
- .

9. Deviation in the technical programme : Nil

10. Results:

Advanced Varietal Trial IInd plant crop

CCS t/ha: Standard Co 86032 recorded highest CCS of 15.29 t/ha and significantly superior to all other clones and standard Co 99004.

Yield t/ha: Standard Co 86032 recorded highest yield of 109.26 t/ha and significantly superior to all other clones and standard Co 99004.

Brix %: Standard Co 86032 recorded highest brix of 22.27 % and on par with clone CoM 06082 (21.20 %) and significantly superior to other clones and standard Co 99004.

CCS %: Standard Co 86032 recorded highest CCS of 13.99 % and on par with Clone CoM 06082 (13.48 %), Co 06012 (12.99 %) and significantly superior to other clones and standard Co 99004.

Sucrose %: Standard Co 86032 recorded highest sucrose of 20.05 % and on par with Clone CoM 06082 (19.25 %), Co 06012 (18.49 %) and significantly superior to other clones and standard Co 99004.

Ratoon crop

CCS t/ha: Clone Co 06010 recorded highest CCS of 14.13 t/ha and on par with Co 06012 (13.6 t/ha), Co 06020 (13.54 t/ha) and standard Co 86032 and significantly superior to all the clones and standards.

Yield t/ha: Clone Co 06015 recorded highest yield of 108.33 t/ha and on par with Co 06010 (108.15 t/ha), clone Co 06012 (102.78 t/ha), clone Co 06020 (103.15 t/ha) and significantly superior to all the clones and both standards.

Brix %: Standard Co 86032 recorded highest brix of 22.1 % and on par with five clones and standard Co 99004 and significantly superior to all the clones and standard Co 99004.

CCS %: Standard Co 86032 recorded highest CCS of 14.04 % and on par with five clones and standard Co 99004 and significantly superior to all the clones and standard Co 99004.

Sucrose %: Standard Co 86032 recorded highest sucrose of 20.05 % and on par with three clones and standard Co 99004 and significantly superior to all the clones and standard Co 99004.

11. Remarks : Nil

Signature of the Principal Investigator

Signature of Head of Station

7. Advanced Varietal Trial (Midlate – II Plant)

S. No.	Clone	CCS t/ha	Cane yield t/ha	Brix % (12 m)	Sucrose % (12 m)	Purity % (12 m)	CCS % (12 m)	Pol % cane (12m)	Extracti on % (12 m)	Fibre % (12 m)	NMC at 12 m ('000/ha)
1	Co 06007	12.59	105.37	18.43	16.95	91.07	11.94		62.29		117.59
2	Co 06010	15.26	121.85	19.50	17.83	90.63	12.53		59.84		137.13
3	Co 06012	13.20	101.48	20.23	18.49	90.60	12.99		61.07		113.98
4	Co 06013	11.11	86.85	19.97	18.21	90.37	12.78		63.38		101.85
5	Co 06014	10.23	81.85	19.47	17.75	90.37	12.46		55.05		96.11
6	Co 06015	12.11	112.50	16.83	15.35	90.17	10.77		61.61		125.93
7	Co 06020	12.26	97.04	19.63	17.98	90.77	12.64		56.14		110.46
8	Co 06027	11.83	102.96	17.83	16.34	90.70	11.49		61.06		115.56
9	CoM 06082	10.430	77.59	21.200	19.250	90.07	13.48		57.85		91.203
10	CoM 06084	9.81	77.22	19.70	18.06	90.83	12.70		60.46		90.56
11	CoSnk 03632	11.96	102.04	18.17	16.64	90.67	11.70		57.37		116.02
Stds											
1	Co 86032	15.29	109.26	22.27	20.05	89.37	13.99		61.08		125.09
2	Co 99004	11.45	90.93	19.57	17.91	90.73	12.59		62.25		105.28
	CD	1.59	7.725	1.842	1.642	NS	1.14		5.182		7.486
	CV	8.00	4.83	5.77	5.63	0.57	5.59		5.27		4.10

S. No.	Clone	Stalk Length (m)	Stalk Diameter (cm)	Single cane weight (kg)	Brix % (10 m)	Sucrose % (10 m)	Purity % (10 m)	CCS % (10 m)	No. of shoots ('000/ha) 240 days	No. of tillers ('000/ha) 120 days	Germination % (30 days)
1	Co 06007	229	3.25	1.445	16.03	14.26	87.97	9.89	122.96	129.26	50.44
2	Co 06010	228	3.23	1.389	16.60	14.79	88.10	10.27	143.52	151.30	64.56
3	Co 06012	238	3.29	1.411	17.63	15.71	88.23	10.91	118.15	123.98	50.22
4	Co 06013	210	3.23	1.278	17.50	15.71	88.80	10.94	106.39	111.85	54.06
5	Co 06014	244	3.14	1.400	17.03	15.10	87.70	10.46	99.82	104.26	62.06
6	Co 06015	241	3.24	1.319	14.47	12.95	88.43	9.01	130.18	135.37	77.56
7	Co 06020	222	3.04	1.194	17.07	15.16	87.93	10.51	114.44	119.44	70.33
8	Co 06027	219	3.23	1.195	15.20	13.47	87.57	9.33	120.00	125.28	56.61
9	CoM 06082	225	3.20	1.583	18.533	16.527	88.367	11.48	95.37	100.74	52.28
10	CoM 06084	245	3.21	1.500	17.23	15.33	88.07	10.64	96.11	102.96	40.50
11	CoSnk 03632	246	3.21	1.389	15.47	13.81	88.33	9.59	121.67	128.61	53.33
Stds											
1	Co 86032	247	3.07	1.433	18.97	16.75	87.50	11.58	130.28	136.48	53.11
2	Co 99004	266	3.03	1.461	17.30	15.32	87.60	10.60	109.72	115.19	50.17
	CD	11.120	0.310	0.1508	1.880	1.644	1.033	1.135	7.355	8.043	6.858
	CV	2.88	5.94	6.64	6.81	6.64	0.72	6.65	3.860	4.02	7.39

8. Advanced Varietal Trial (Midlate - Ratoon)

S. No.	Clone	CCS t/ha	Cane yield t/ha	Brix % (11 m)	Sucrose % (11 m)	Purity % (11 m)	CCS % (11 m)	Pol % cane (11m)	Extracti on % (11 m)	Fibre % (11 m)	NMC at 11 months ('000/ha)
1	Co 06007	9.60	77.36	19.33	17.68	90.63	12.42		58.63		94.44
2	Co 06010	14.13	108.15	20.33	18.58	90.60	13.05		63.08		123.06
3	Co 06012	13.60	102.78	20.67	18.88	90.57	13.26		63.26		120.65
4	Co 06013	11.63	92.41	19.73	17.98	90.30	12.61		63.14		108.89
5	Co 06014	10.68	84.45	19.67	18.00	90.67	12.65		64.17		101.76
6	Co 06015	12.49	108.33	17.97	16.41	90.43	11.53		63.28		126.11
7	Co 06020	13.54	103.15	20.37	18.65	90.77	13.11		59.44		118.70
8	Co 06027	12.42	92.97	20.83	19.03	90.53	13.36		62.38		108.89
9	CoM 06082	11.89	92.04	20.10	18.36	90.50	12.89		63.40		108.33
10	CoM 06084	8.23	65.29	19.63	17.91	90.40	12.57		58.24		79.07
11	CoSnk 03632	10.67	86.85	19.20	17.53	90.47	12.32		62.66		100.65
Std											
1	Co 86032	13.39	95.37	22.10	20.05	90.00	14.04		63.64		110.00
2	Co 7219	11.72	88.33	20.77	18.94	90.47	13.29		64.26		104.17
	CD	1.498	10.442	1.629	1.452	NS	1.011		4.215		11.596
	CV	7.71	6.91	4.95	4.83	0.42	4.79		4.12		6.54

S. No.	Clone	Stalk Length (m)	Stalk Diameter (cm)	Single cane weight (kg)	No. of shoots ('000/ha) 180 days	No. of tillers ('000/ha) 90 days
1	Co 06007	190	2.94	1.391	101.85	108.80
2	Co 06010	214	3.08	1.606	130.65	138.24
3	Co 06012	222	3.10	1.717	128.80	136.94
4	Co 06013	207	3.22	1.711	115.46	122.13
5	Co 06014	217	2.93	1.572	110.28	118.79
6	Co 06015	246	3.03	1.767	132.96	140.09
7	Co 06020	214	2.99	1.611	125.09	131.39
8	Co 06027	192	2.94	1.534	116.39	123.89
9	CoM 06082	219	2.77	1.472	114.17	119.91
10	CoM 06084	192	2.73	1.428	85.65	92.04
11	CoSnk 03632	224	2.98	1.716	108.52	116.30
Stds						
1	Co 86032	219	2.73	1.694	118.42	126.85
2	Co 7219	234	2.96	1.467	110.37	116.67
	CD	11.0	0.264	0.225	12.145	11.926
	CV	3.12	5.44	8.60	6.42	5.93

Fluff 2011-12

Date of receipt: 11/02/2012

Date of sowing: 07/03/2012

No. of Zonal Crosses:18

No. of Station Crosses:14

No. of PCs:13

No. of GCs:21

Sl. No.	Station crosses	Fluff weight (g)	Number of seedlings	seedlings/gm
1	C 79218 X Co 94008	9.97	182	18.25
2	CoV 94101 X CoT 8201	10.8	168	15.56
3	Co 7219 X CoT 8201	9.52	267	28.05
4	CoA 92081 X Co 1148	13.83	106	7.66
5	C 79218 X CoT 8201	21.2	174	8.21
6	Co 8013 X Co 1148	13.33	118	8.85
7	CoTl 85118 X CoV 92102	9.6	113	11.77
8	ISH 50 X CoT 8201	24.92	189	7.58
9	C 79218 X Co 86249	12.47	177	14.19
10	Co 97009 X CoT 8201	17.57	139	7.91
11	CoC 8201 X ISH 41	13.25	112	8.45
12	Co 98013 X CoV 92102	12.3	155	12.60
13	Co 94012 X C 79180	26.11	240	9.19
14	CoA 92081 X CoV 92102	9.6	140	14.58
15	CoTl 85119 X CoC 671	12.43	20	1.61
16	Co 92008 X CoV 92102	10.93	117	10.70
17	CoTl 85119 X Co 86249	12.52	100	7.99
18	Co 86032 X Co 775	11.13	133	11.95
	Total	251.48	2650	

Sl. No.	Zonal Cross	Fluff weight (g)	Number of seedlings	seedlings/gm
1	Co 86002 X Co 1148	7.32	134	18.31
2	Co 8213 X Co 86011	11.52	113	9.81
3	Co 8213 X CoT 8201	12.9	198	15.35
4	Co 85002 X Co 62174	8.5	111	13.06
5	Co 8371 X Co 86011	7.42	158	21.29
6	Co 8371 X CoT 8201	6.77	111	16.40
7	Co 7201 X CoC 671	4.33	119	27.48
8	CoC 671 X Co 94008	7.39	207	28.01
9	CoV 94101 X Co 97015	8.61	190	22.07
10	CoC 671 X CoT 8201	7.55	184	24.37
11	Co 740 X Co 775	6.27	187	29.82
12	CoM 0213 X Co 99006	5.82	133	22.85
13	Co 86032 X Co 86250	7.65	125	16.34
14	CoM 0213 X Co 775	9.1	110	12.09

	Total	111.15	2080	
		Fluff weight (g)	Number of seedlings	seedlings/ gm
GC				
1 CoM 0265		3.6	253	70.28
2 ISH 100		17.6	568	32.27
3 Co 94012		15.52	173	11.15
4 Co 85002		9.2	61	6.63
5 CoA 7602		13.4	125	9.33
6 86 V 46		5.22	119	22.80
7 CoC 671		7.11	168	23.63
8 81 V 48		9.8	194	19.80
9 CP 52 – 68		6	173	28.83
10 Co 200-10		9.9	126	12.73
11 CoC 90063		7.2	163	22.64
12 Co 7201		7.84	122	15.56
13 Co 8371		5.74	179	31.18
Total		118.13	2424	
GC				
1 Co 87002		5.6	152	27.14
2 Co 92008		4.46	127	28.48
3 CoA 92081		11.44	116	10.14
4 Co 8213		16.07	176	10.95
5 Co 775		19.6	112	5.71
6 Co 740		36.93	145	3.93
7 C 81-129		10.15	114	11.23
8 CoJ 64		2.6	116	44.62
9 C 79218		43.68	230	5.27
10 CoC 8201		22.63	581	25.67
11 CoS 96275		10.98	132	12.02
12 CoTl 85119		58	357	6.16
13 Co 98013		30.49	135	4.43
14 CoS 95255		6.6	182	27.58
15 Co 7201		2.9	110	37.93
16 ISH 50		28.8	185	6.42
17 Co 86032		29.94	586	19.57
18 CoV 94101		8.2	150	18.29
19 Co 7219		7.06	115	16.29
20 Co 8013		17.02	1112	65.33
21 CoM 0265		27.72	265	9.56
Total		400.87	5198	
Grand total		881.63	12352	

Details of seedlings obtained from fluff exchange programe from 2007-2011							
Sl.No.	Year sown	Crosses	PC / GC	No. of seedlings obtained initially	Seedlings transplanted	C1	CII
1	2011	32	34	12352			
2	2010	29	26	6498	4253		
3	2009	26	43	6529	4328		
4	2008	31	30	24685	4836	158	
5	2007	31	45	5906	3454	218	68

Meteorological data during the crop period (January 2011-December 2011)

Month/year	Temperature (°C)		Rain fall (mm)	Rainy days
	Maximum	Minimum		
January -2011	30.8	22	118	6
February – 2011	31.9	22.1	52	2
March - 2011	32.2	24.6	5	2
April - 2011	32.5	24.6	328	15
May- 2011	24	32.1	363	9
June - 2011	24.5	32.2	457.5	22
July - 2011	24.1	32.2	307.5	24
August - 2011	23.2	31.7	240	17
September - 2011	31.6	28.9	375.5	20
October - 2011	33.4	24.4	214	7
November - 2011	33.4	22.3	69	7
December - 2011	33	22.7	173	5

Crop Management

KERALA AGRICULTURAL UNIVERSITY
SUGARCANE RESEARCH STATION, THIRUVALLA

**AICRP on Sugarcane –Crop Production
Annual Report for 2011-12**

- 1. Name of the project-** **Agronomic evaluation of promising sugarcane genotypes**
- 2. Project No-** AS 42
- 3. Year of start -** 2007-2008 (with new set of genotypes of AVT)
- 4. Objectives-** To identify the most suitable genotype and to work out the economic fertilizer dose for the given genotypes of AVT.
- 5. Technical Programme**

Treatments

A. Varieties

V₁ - CoM 0265, V₂ - Co 0211, V₃ - Co 0218

B. Fertilizer levels

F₁- 75 percent of the recommended dose of N

F₂- 100 percent of the recommended dose of N

F₃- 125 percent of the recommended dose of N

Design - Factorial RBD

Replications - Three

Plot size - 6 x 5.4 m²

6. Results of the experiment for the current year :

The experiment was conducted with three promising cultures namely, V₁ - CoM 0265, V₂ - Co 0211 and V₃ - Co 0218 with three nitrogen levels – ie., 75(F₁), 100(F₂) and 125 % (F₃) of the recommended dose of N (100% of the recommended dose of N = 165 kg/ha). The crop was planted on 15.02.2011 and harvested on 25.02.2012.

The treatment variation due to varieties were significant for yield parameters, cane and sugar yield as well as juice quality. Among the varieties studied, CoM 0265(V₁) recorded significantly higher cane yield (85.80 t/ha) and it was followed by Co 0218(V₃) with an yield of 79.70 t/ha. Sugar yield also followed the same trend with significantly higher yield for CoM 0265(V₁) and Co0218 (V₃).

The analysis of variance for yield attributing factors, cane yield and juice parameters were significant with varying levels of nitrogen. Application of N at 125% of R.D. had recorded maximum cane and sugar yield (F₃)and it was significantly superior to mineral nutrition with N at 75% and 100% of R.D.

The interaction effect between variety and N levels were found significant only for cane length at harvest. The variety CoM 0265 with 125% of recommended dose of N had recorded the highest value for Cane length.

7. Summary

It can be concluded from the study that the genotype CoM 0265 is found to be promising as it has recorded the highest cane and sugar yield followed by the genotype Co 0218. All the genotypes performed better at 125 % of the recommended dose of N.

Cane yield and juice quality as influenced by varieties and fertilizer levels

Treatments	Cane length (cm)	Cane girth (cm)	Single cane wt (kg)	MCC (‘000/ha)	SMT Brix (%)	CCS (%)	Cane yield (t/ha)	Sugar yield (t/ha)
V ₁	236.84	9.47	1.54	82.34	18.09	10.69	85.80	9.20
V ₂	206.26	8.04	0.97	67.38	16.63	10.00	66.96	6.70
V ₃	224.33	8.64	1.31	75.57	17.67	10.39	79.70	8.30
CD (0.05)	7.89*	0.24*	0.05*	1.86*	0.23*	NS	1.49*	0.72*
F ₁	208.72	8.44	1.17	70.81	17.07	10.04	72.38	7.27
F ₂	220.19	8.72	1.25	75.81	17.49	10.35	77.79	8.07
F ₃	238.52	8.99	1.40	78.67	17.83	10.70	82.30	8.85
CD (0.05)	7.89*	0.24*	0.05*	1.86*	0.23*	NS	1.49*	0.72*
V ₁ F ₁	215.72	8.98	1.39	75.28	17.53	10.03	78.46	7.86
V ₁ F ₂	230.47	9.54	1.52	83.17	18	10.61	86.51	9.17
V ₁ F ₃	264.33	9.9	1.71	88.58	18.73	11.44	92.43	10.57
V ₂ F ₁	197.67	7.92	0.91	64.67	16.4	9.79	63.43	6.21
V ₂ F ₂	205.11	7.92	0.95	67.85	16.67	10.09	66.49	6.71
V ₂ F ₃	216	8.27	1.06	69.63	16.83	10.11	70.96	7.18
V ₃ F ₁	212.78	8.42	1.21	72.47	17.27	10.31	75.24	7.75
V ₃ F ₂	225	8.68	1.29	76.43	17.8	10.35	80.35	8.32
V ₃ F ₃	235.22	8.80	1.44	77.80	17.93	10.54	83.50	8.82
VxF	13.66*	NS	NS	NS	NS	NS	NS	NS
CD (0.05)								

Signature of the Principal Investigator

Signature of the Head of Station

1. Name of the project -**Management of binding weeds in sugarcane**
2. Project No. - AS 62
3. Year of start - 2009-2010
4. Objective - To control binding weeds/creepers in sugarcane.
5. Technical Programme
 - Treatments - 10
 - T₁ - Control (weedy check)
 - T₂ - Hoeing at 30, 60 and 90 DAP
 - T₃ - Atrazine @2kg ai/ha (P.E) followed by 2,4-D (1.0kg a.i/ha) at 60DAP
 - T₄ - Atrazine @2.0kg ai/ha after first irrigation and hoeing followed by 2,4-D @1kg ai/ha at 75 DAP
 - T₅ - Metribuzin @1.25kg ai/ha (P.E) followed by 2,4-D at 1.0 kg ai/ha at 75 DAP
 - T₆ - Atrazine @2.0kg ai/ha (P.E) + Almix 20g/ha at 75 DAP
 - T₇ - Metribuzin @1.25kg ai/ha (PE)+Almix 20g/ha at 75 DAP
 - T₈ - Atrazine @2.0kg ai/ha (PE)+Ethoxysulfuron 50g ai at 75 DAP
 - T₉ - Atrazine @2.0kg ai/ha (PE)+Dicamba 350g ai/ha at 75 DAP
 - T₁₀- Metribuzin @1.25kg ai/ha (PE)+Dicamba 350g ai/ha at 75 DAP
 - Design - RBD,
 - Variety - Madhuri
 - Replications - Three

6. Results of the experiment for the current year :

A critical review of the data revealed that the weed control measures had significantly influenced the weed density , cane and sugar yield. All the weed control measures resulted in significant reduction for weed dry weight and density.

Pre-emergant application of Metribuzin @1.25kg ai/ha followed by 2,4-D @1kg a.i/ha during 75 DAP(T₅) had significantly controlled the weed population. But it was closely followed by hoeings at 30, 60 and 90 DAP(T₂).

The treatment with P.E.application of Metribuzin @1.25kg ai/ha +2,4-D @1kg a.i/ha as post emergence at 75 DAP had produced maximum cane yield(112.47 t)and sugar yield (11.82 t) and it was significantly superior to all other weed control measures followed.

7. Summary

The experimental results revealed that the application of Metribuzin @1.25 kg ai/ha as pre emergent spray followed by 2,4-D @1.0kg ai/ha at 75 days after planting is very effective in controlling weeds and getting profitable yield. Though hoeing is effective in controlling weeds, it is not economic as it is labour intensive, time consuming and costly.

Cane yield and juice quality as influenced by various weed management practices

Treatments		Cane length (cm)	Cane girth (cm)	Cane weight (kg)	MCC ('000/ha)	CCS (%)	Cane yield (t/ha)	Sugar yield (t/ha)	Weed Dry wt. (g/m ²)
T ₁	Control	202.1	8.2	1.07	66.92	9.01	71.73	6.46	97.6
T ₂	Hoeing	263	9.48	1.46	88.48	10.39	102.78	10.66	27.26
T ₃	A+2,4-D60DAP	237.17	9.1	1.26	81.78	9.49	89.5	8.47	51.72
T ₄	A+2,4-D75DAP	241.53	9	1.21	80.45	9.26	86.77	8.02	61.52
T ₅	M+2,4D	269.5	9.51	1.51	93.98	10.5	112.47	11.82	24.76
T ₆	A+Almix	212	9.29	1.2	77.33	9.71	84.5	8.21	67.33
T ₇	M+Almix	224.1	8.48	1.53	83.78	9.41	94.5	8.88	41.17
T ₈	A+Ethoxysulfuron	219.8	8.96	1.14	77.22	9.9	82	8.11	73.77
T ₉	A+Dicamba	215.6	8.67	1.09	76.05	9.37	83.76	7.82	84.5
T ₁₀	M+Dicamba	250.87	8.71	1.34	83.1	9.48	95.1	9.02	35.27
CD (0.05)		16.49*	0.84*	0.15*	5.79*	1.94*	9.27*	1.88*	3.71*

Signature of Principal Investigator

Signature of the Head of Station

1. Name of the project - **Plant geometry in relation to mechanization in sugarcane**
2. Project No - AS 63
3. Duration of study - 2011-2014
4. Objectives -
 - 1.To find out plant geometry for use of farm machinery
 - 2.To study varietal response to different plant geometry

5. Technical Programme

Treatments

A: Plant Geometry

1. 120cm row distance (G_1)
2. 150cm row distance (G_2)
3. 30 x 150cm (G_3)

B: Genotypes

1. V_1 – CoVSI 5122
2. V_2 – CoSnk 05105
3. V_3 – Co 05007
4. V_4 - Madhuri

Plot size: 6 x 8 m

Design: Split plot

Replications: 3

6. Results of the experiment for the current year :

The experiment was conducted with four genotypes (Co VSI 5122, Co Snk 05105, Co 05007, Madhuri) with different row spacing of G_1 (120cm row distance), G_2 (150 cm row distance) and G_3 (30 x 150 cm). The crop was planted on 20-2-2011 and harvested on 9-2-2012.

The data on cane yield, sugar yield and CCS % revealed that the treatment effects due to row spacings were not significant. However the treatments with row spacing of 30x 150 cm had produced maximum cane yield (84.7 t/ha) and sugar yield (8.32 t/ha). While in the case of MCC treatments were found significant and the row spacing of 30x150 cm had recorded the highest value (72.21).

Among the genotypes evaluated Madhuri had recorded significantly higher cane length, MCC, cane yield and sugar yield. However it was statistically on par with Co 05007 and significantly superior to Co VSI 5122 and Co Snk 05105. The results of the quality analysis revealed that the variety CoVSI 5122 was on par with Co 05007.

The interaction effect between varieties and row spacings were found to be non significant.

7. Summary

It may be concluded from the study that the row distance of 30 x 150 cm was found to be suitable for getting maximum cane and sugar yield. The variety Madhuri responded well to different row spacings and it has recorded the highest cane and sugar yield followed by the variety Co 05007.

Cane yield and juice quality as influenced by plant geometry and genotypes

Treat ment	Cane length (cm)	Cane girth (cm)	MCC (ˆ000/ha)	Single cane wt. (kg)	SMT Brix(%)	CCS (%)	Cane yield (t/ha)	Sugar yield (t/ha)
G ₁	265.13	8.32	69.78	1.19	15.73	9.84	79.06	7.72
G ₂	248.11	8.43	62.92	1.25	14.48	9.58	76.35	7.32
G ₃	240.11	8.18	72.21	1.16	16.36	9.8	84.70	8.32
CD (0.05)	6.47*	NS	5.12*	NS	1.03*	NS	NS	NS
V ₁	253.15	7.79	62.19	1.16	17.24	10.12	73.14	7.39
V ₂	226.7	8.53	63	1.20	12.83	9.15	73.86	6.74
V ₃	261.51	8.27	72.64	1.17	16.52	9.84	83.93	8.25
V ₄	262.76	8.64	75.37	1.26	15.49	9.84	89.22	8.79
CD (0.05)	14.08*	0.36*	6.04*	NS	0.93*	NS	9.28*	1.06*
G ₁ V ₁	273.67	7.47	61.08	1.01	17.1	10.69	66.33	7.08
G ₁ V ₂	241.03	8.87	69.96	1.28	13.17	8.97	83.01	7.42
G ₁ V ₃	270.30	8.43	72.07	1.19	17	9.81	81.16	7.97
G ₁ V ₄	275.53	8.5	76	1.26	15.67	9.86	85.74	8.43
G ₂ V ₁	252.83	8	58.94	1.29	16.5	9.69	73.50	7.15
G ₂ V ₂	224.27	8.63	55.32	1.23	12	9.15	67.40	6.15
G ₂ V ₃	255	8.2	68.33	1.19	14.57	9.91	79.62	7.89
G ₂ V ₄	260.33	8.86	69.08	1.29	14.83	9.56	84.90	8.1
G ₃ V ₁	234	7.9	66.56	1.18	18.13	9.98	79.60	7.94
G ₃ V ₂	214.8	8.1	63.72	1.09	13.33	9.34	71.17	6.65
G ₃ V ₃	259.23	8.17	77.53	1.13	18	9.79	91.01	8.9
G ₃ V ₄	252.4	8.57	81.04	1.22	15.97	10.09	97.03	9.81
GxV CD(0.05)	NS	NS	NS	NS	NS	NS	NS	NS

Signature of Principal Investigator

Signature of Head of Station

1. Name of the project - **Response of sugarcane crop to different plant nutrients in varied agro-ecological situations.**

2. Project No. - AS 64

3. Year of start - 2011-12

4. Objective - To study differential Response of sugarcane crop to different plant nutrients

5. Technical Programme

Treatments

T₁ – control (No fertilizers)

T₂ – N

T₃ – NP

T₄ – NPK

T₅ – NPK+S

T₆ – NPK+Zn

T₇ – NPK+Fe

T₈ – NPK+Mn

T₉ – NPK+S+Zn

T₁₀ – NPK+S+Zn+Fe

T₁₁ – NPK+S+Zn+Fe+Mn

T₁₂ – Soil test based fertilizer application (N: 165Kg/ha, P: 50 Kg/ha, K: 50 Kg/ha)

Design - RBD,

Variety - Madhuri

Replications - Three

6. Results of the experiment for the current year:

The experiment was conducted to study the response of sugarcane crop to different plant nutrients. The crop was planted on 15-2-2011 and harvested on 18-2-2012.

The treatment variation due to different combination of plant nutrients were significant for yield parameters, cane and sugar yield. The maximum cane length was obtained in treatments with application of NPK+Zn. The lowest cane length was recorded in the control plot. Application of NPK+S+Zn had recorded the highest cane girth and it was on par with the application of NPK+S and NPK+Zn.

The millable cane count was found highest (88.29) in treatment with NPK+Zn and the control plot had recorded the lowest value (53.51) for the same parameter.

Application of NPK+Zn had recorded maximum cane yield (100.57t/ha) and it was followed by the treatment with soil test based fertilizer application (94.93t/ha). The sugar yield had also followed the same trend. The control plot recorded the lowest sugar and cane yield.

7. Summary

It can be concluded from the study that the highest cane and sugar yield were obtained from the treatment receiving recommended dose of NPK+Zn (50 kg ZnSO₄/ha) followed by fertilizer application as per soil test based recommendations.

Cane yield and juice quality as influenced by different plant nutrients

Treatments		Cane length (cm)	Cane girth (cm)	Cane weight (kg)	MCC ('000/ha)	CCS (%)	Cane yield (t/ha)	Sugar yield (t/ha)
T ₁	Control	226.5	7.97	1.14	53.51	10.76	66.04	7.11
T ₂	N	248	8.33	1.16	69.37	9.96	74.27	7.4
T ₃	NP	256.5	8.65	1.15	79.74	11.25	82.07	9.28
T ₄	NPK	261.83	8.83	1.25	78.51	11.93	84.07	10.05
T ₅	NPK+S	267.17	9.22	1.22	78.81	11.38	89.77	10.22
T ₆	NPK+Zn	278.4	9.27	1.28	88.29	11.07	100.57	11.17
T ₇	NPK+ Fe	245.5	8.22	1.13	70.96	10.32	77.26	7.93
T ₈	NPK+ Mn	252.67	8.51	1.18	65.79	11.84	76.87	9.11
T ₉	NPK+S+Zn	268	9.55	1.26	69.72	10.65	87.33	9.26
T ₁₀	NPK+S+Zn+Fe	252.6	8.35	1.24	73.58	11.06	78	8.62
T ₁₁	NPK+S+Zn+Fe+Mn	250	8.54	1.32	69.53	11	80.39	8.86
T ₁₂	Soil test based application	256.73	8.97	1.33	84.53	11.46	94.93	10.86
CD (0.05)		15.17*	0.75*	NS	13.29*	NS	11.43*	1.86*

Initial Nutrient Status of the Experimental Site							
Available N (Kg/ha soil)	Available P (Kg/ha soil)	Available K (Kg/ha soil)	S (ppm)	Fe (ppm)	Zn (ppm)	Cu (ppm)	Mn (ppm)
201	14	360	5.83	56.37	2.23	3.18	8.82

Final Nutrient Status of the Experimental Site								
Treat- ments	Available N (Kg/ha soil)	Available P (Kg/ha soil)	Available K (Kg/ha soil)	S (ppm)	Fe (ppm)	Zn (ppm)	Cu (ppm)	Mn (ppm)
T ₁	203.49	30.46	253.23	27.2	148	0.32	3.53	17.3
T ₂	213.24	28.44	311.59	9.47	183.96	5.07	3.39	18.13
T ₃	223.7	24.34	323.75	16.25	220.75	4.45	3.15	18.5
T ₄	219.53	30.69	305.09	11.1	267.2	8.1	2.97	20.7
T ₅	192.35	28.78	207.98	23.8	151.2	7.3	2.7	22.3
T ₆	227.88	33.04	243.83	9.85	308.15	11.15	2.86	21.55
T ₇	194.43	27.22	317.52	10.9	456.77	10.18	2.97	15.5
T ₈	225.79	25.76	395.92	14.81	232.7	7.83	2.79	21.3
T ₉	219.52	31.14	379.56	22.4	127.73	5.57	2.86	17.16
T ₁₀	223.7	25.65	364.44	16.13	410.93	9.4	2.77	15.6
T ₁₁	227.88	26.21	300.95	15.95	271.9	8.5	2.75	23.65
T ₁₂	213.15	23.18	376.21	8.15	63.85	7.15	2.7	14.15

Signature of Principal Investigator

Signature of the Head of Station

Pathology

**KERALA AGRICULTURAL UNIVERSITY
SUGARCANE RESEARCH STATION
THIRUVALLA**

ANNUAL REPORT FOR 2011 -2012

1. Title : **Evaluation of zonal varieties for resistance to red rot**
2. Objectives : To gather information on the relative resistance to red rot of the entries in zonal varietal trials of the respective zones
3. Technical programme including observations required
 - a. Varieties/genotypes : All the centers will test all the entries of early and mid late genotypes under IVT and AVT (2008-09) of the respective zone.
 - b. Inoculum collection. : Isolates chosen will be only from local red rot collection.
 - c. Method of inoculation : Plug and nodal method of inoculation to be done in the fortnight of August to first week of September when 6 to 7 well formed internodes are formed.
 - d. Observation : One observation at the 60th day of inoculation. The canes are split opened longitudinally along the point of inoculation. This is graded on the international scale of 0-9.
4. Evaluation (result)

(a) INITIAL VARIETAL TRIALS

All the entries in the IVT (Early & Midlate) were inoculated by plug and nodal methods of inoculation with the isolates of red rot pathogen and observations were recorded 60 days after inoculation (Table 1).

(i) Initial Varietal Trial (Early)

Out of the 5 entries tested in the IVT (Early), three varieties viz., Co 08001, CoN 08071 and PI 08131 showed moderately resistant reaction; one variety viz., Co 08006 showed moderately susceptible reaction and one variety viz., VSI 08121 showed susceptible reaction to plug method of inoculation.

All the varieties showed resistant reaction to nodal method of inoculation.

(ii) Initial Varietal Trial (midlate)

Out of the 18 entries tested in the IVT (midlate), fourteen varieties viz., Co 08007, Co 08008, Co 08009, Co 08016, Co 08018, Co 08019, Co 08020, Co JN 08091, CoM 08081, CoN 08072, CoR 08141, CoSnk 08101, CoVC 08062 and CoVC 08063 showed moderately

resistant reaction and four varieties viz., Co VC 08061, Co VC 08064, Co VSI 08122 and Co VSI 08123 showed moderately susceptible reaction to plug method of inoculation.

All the varieties showed resistant reaction to nodal method of inoculation.

(b) Advanced Varietal Trials

All the entries in the AVT (Early & Midlate) were inoculated by plug and nodal method of inoculation with the isolates of red rot pathogen and observation were recorded 60 days after inoculation (Table 2).

(i) Advanced Varietal Trial(Early)I Plant

Out of the 7 entries tested in the AVT (Early I plant), four varieties viz., Co 07012, Co 07015 ,CoN 07071 and PI 07131 showed moderately resistant reaction; one variety viz., Co 94008 showed moderately susceptible reaction and two varieties viz., Co 85004 and CoC 671 showed susceptible reaction to plug method of inoculation.

Out of the 7 entries, six varieties viz; Co 07012, Co 07015, CoN 07071, PI 07131 , Co 85004 and Co 94008 showed resistant reaction and one variety viz., CoC 671 showed susceptible reaction to nodal method of inoculation

(ii) Advanced Varietal Trial (Midlate) I Plant

Out of the 8 entries tested in the AVT (Midlate) only one variety viz., CoSnk 07103 showed moderately resistant reaction, six varieties viz., Co 07006, Co 07008, Co 07009, Co 07010, Co 99004 and Co 86032 showed moderately susceptible reaction and one variety viz ., Co 07007 showed susceptible reaction to plug method of inoculation.

Out of the 8 entries only one variety viz., Co 07008 showed susceptible reaction and seven varieties viz., Co 07006, Co 07007 , Co 07009, Co 07010 , Co Snk 07103 , Co 99004 and Co 86032 showed resistant reaction to nodal method of inoculation.

(iii) Advance Varietal Trial (Early) II Plant

Out of the five entries tested in the AVT (early) II Plant, three varieties viz ., Co 06001, Co 06002 and Co 06022 showed moderately resistant reaction and two varieties viz., PI 06132 and Co M 06082 showed moderately susceptible reaction to plug method of inoculation.

All the varieties showed resistant reaction to nodal method of inoculation.

(iii) Advance Varietal Trial (Midlate) II Plant

Out of the eleven entries tested in the AVT (midlate) II Plant, six varieties viz., Co 06007, Co 06012 ,Co 06013,Co 06015, Co 06020 and Co 06027 showed moderately resistant reaction and five varieties viz., Co 06010, Co 06014, CoM 06082, CoM 06084 and CoSnk 03632 showed moderately susceptible reaction to plug method of inoculation.

Out of the eleven entries one variety viz; Co 06013 showed susceptible reaction and ten varieties viz; Co 06007, Co 06010, Co 06012 ,Co 06014, Co 06015, Co 06020, Co 06027 , CoM 06082, CoM 06084 and CoSnk 03632 showed resistant reaction to nodal method of inoculation.

Signature of Scientist

Signature of Head of office

Evaluation of Zonal varieties/genotypes for resistance to red rot
Location: Sugarcane Research Station, Thiruvalla

Table 1. Initial varieties trials (early and mid late)

SL.No	Genotypes	Plug Method		Nodal Method	
		Reaction	Score	Reaction	Score
A. IVT (Early)					
1.	Co 08001	MR	4.0	R	2.8
2.	Co 08006	MS	5.0	R	3.4
3.	CoN 08071	MR	3.4	R	1.4
4.	PI 08131	MR	3.8	R	2.4
5.	VSI 08121	S	7.0	R	2.8
B. IVT (MID LATE)					
1.	Co 08007	MR	2.8	R	2.8
2.	Co 08008	MR	3.0	R	1.2
3.	Co 08009	MR	3.6	R	2.4
4.	Co 08016	MR	3.0	R	1.8
5.	Co 08018	MR	3.2	R	2.0
6.	Co 08019	MR	3.6	R	1.8
7.	Co 08020	MR	3.0	R	1.6
8.	Co JN 08091	MR	3.2	R	1.0
9.	Co M 08081	MR	3.2	R	1.2
10.	Co N 08072	MR	3.0	R	2.4
11.	Co R 08141	MR	3.4	R	2.2
12.	Co Snk 08101	MR	3.0	R	2.8
13.	Co VC 08061	MS	4.6	R	2.2
14.	Co VC 08062	MR	3.4	R	1.6
15.	Co VC 08063	MR	3.2	R	1.0
16.	Co VC 08064	MS	4.2	R	2.0
17.	Co VSI 08122	MS	4.6	R	1.2
18.	Co VSI 08123	MS	5.0	R	2.8

Table 2. Advanced varieties trials

SL.No	Genotypes	Plug Method		Nodal Method	
		Reaction	Score	Reaction	Score
A. AVT (Early) I Plant crop					
1.	Co 07012	MR	2.6	R	3.2
2.	Co 07015	MR	4.0	R	1.6
3.	Co N 07071	MR	2.4	R	2.8
4.	PI 07131	MR	3.4	R	2.4
5.	Co 85004	S	6.6	R	3.6
6.	Co 94008	MS	4.2	R	2.4
7.	Coc 671	S	7.2	S	8.0
B. AVT (Midlate) I Plant crop					
1.	Co 07006	MS	4.8	R	1.4
2.	Co 07007	S	6.6	R	3.2
3.	Co 07008	MS	5.4	S	6.2

4.	Co 07009	MS	5.2	R	2.0
5.	Co 07010	MS	4.6	R	3.2
6.	Co Snk 07103	MR	3.8	R	1.0
7.	Co 99004	MS	5.5	R	4.8
8.	Co 86032	MS	4.6	R	4.0
C. AVT (Early) II Plant					
1.	Co 06001	MR	3.6	R	2.8
2.	Co 06002	MR	3.0	R	2.0
3.	Co 06022	MR	4.0	R	4.2
4.	PI 06132	MS	4.4	R	2.6
5.	CoM 06082	MS	5.2	R	2.6
D. AVT (MIDLATE) II Plant					
1.	Co 06007	MR	3.8	R	5.6
2.	Co 06010	MS	5.6	R	4.0
3.	Co 06012	MR	4.0	R	4.2
4.	Co 06013	MR	3.8	S	6.4
5.	Co 06014	MS	5.6	R	3.2
6.	Co 06015	MR	2.6	R	1.0
7.	Co 06020	MR	3.8	R	2.0
8.	Co 06027	MR	3.8	R	2.8
9.	CoM 06082	MS	5.2	R	2.6
10.	CoM 06084	MS	5.8	R	3.6
11	Co Snk 03632	MS	6.0	R	5.2

Scale	Reaction
	0.0-2.0 R
	2.1-4.0 MR
4.1-6.0	MS
	6.1-8.0 S
	Above 8 HS

KERALA AGRICULTURAL UNIVERSITY
SUGARCANE RESEARCH STATION
THIRUVALLA

ANNUAL REPORT FOR 2011-2012

Project No	:	PP.14
Title	:	Identification of pathotypes of red rot pathogen
Objective	:	To gather information on the major pathotypes of red rot pathogen from the different areas /zones.
Location	:	Peninsular zone-Thiruvalla, Sugarcane Research Station, Thiruvalla.
Year of start	:	1983-84 (continuing project)
Differential varieties/genotypes	:	Baragua Khakai SES 594 CoS 767 BO 91 CoC 671 Co 7717 Co 997 Co J 64 Co 1148 Co 419 Co 62399 Co 975 CoS 8436
No. of isolates	:	Virulent isolates collected from redroot affected canes of commercially cultivated varieties in the zone.
Method of inoculation	:	Plug method of inoculation to be done. Inoculations with each isolate to be done on all the varieties with freshly prepared spore suspension. All inoculations to be completed in 2 days by last week of August.
Observation	:	One observation at the 60 th day of inoculation.

Evaluation : :TThe canes are to be split opened longitudinally alalong the point of inoculation. This is graded of th the international scale of 0-9.

Result :

Seven isolates, CfSi 6 (from Co Si 6), Cf 91017 (from Co 91017), Cf 94012 (from Co 94012) Cf 95020 (from Co 95020), Cf 92012 (from Co 92012), PI 843 and isolate Co Tl 88322 (from Co Tl 88322) along with were tested on 14 differentials . All the seven isolates were closely similar to Cf 06 except an I reaction of Co Si 6 on CoS 767, two I reactions of Cf 94012 on Co 997 & Co 1148 and an I reaction of Cf 95020 on CoJ 64.

The new isolate Co Tl 88322 which showed a different reaction last year appeared to be similar to Cf 6 this year. Thus there appears to be no indication of appearance of any new pathotype.

Signature of Scientist

Signature of Head of office

**Identification of pathotypes /races in red rot pathogen
Location: Sugarcane Research Station, Thiruvalla**

Table -1

Reaction of host differentials to pathogen isolates																
Si. No .	Pathotype/Isolate	Source	Differentials													
			Co 419	Co 975	Co 997	Co 1148	Co 7717	Co 62399	Co C 671	CoJ 64	Co S 767	Co S 8436	BO 91	Baragua	Kakha i	SES 594
1	Cf 6	CoC 671	R	R	R	R	R	R	I	R	R	R	R	R	R	R
2	Cosi6	-	R	R	R	R	R	R	I	R	I	R	R	R	R	R
3	Isolate 91017	-	R	R	R	R	R	R	I	R	R	R	R	R	R	R
4	Isolate 94012	-	R	R	I	I	R	R	I	R	R	R	R	R	R	R
5	Isolate 95020	-	R	R	R	R	R	R	I	I	R	R	R	R	R	R
6	Isolate PI 843	-	R	R	R	R	R	R	I	R	R	R	R	R	R	R
7	Isolate 92012	-	R	R	R	R	R	R	I	R	R	R	R	R	R	R
8	New isolate	Madhuri	R	R	R	R	R	R	I	R	R	R	R	R	R	R

Table -2

Score of the reaction of host differentials to pathogen isolates																
Si. No .	Pathotype/Isolate	Source	Differentials													
			Co 419	Co 975	Co 997	Co 1148	Co 7717	Co 62399	Co C 671	Co J 64	Co S 767	Co S 8436	BO 91	Baragua	Kakha i	SE S 594
1	Cf 6	CoC 671	2.3	2.7	2.7	3.0	3.3	3.0	4.3	3.0	2.7	3.0	2.3	2.0	3.0	3.0
2	Cosi6	-	3.7	3.0	2.3	3.0	3.0	3.0	4.3	3.0	4.7	2.7	2.7	3.3	3.0	3.5
3	Isolate 91017	-	3.0	3.0	2.3	3.0	3.3	3.0	4.3	3.0	3.0	3.3	3.0	3.0	3.0	3.0
4	Isolate 94012	-	3.3	3.3	5.3	4.7	2.7	3.0	5.3	4.0	4.0	3.0	3.0	4.0	2.7	3.0
5	Isolate 95020	-	2.3	2.7	2.3	3.0	3.0	3.0	4.7	4.5	2.7	3.0	2.7	3.0	3.0	3.0
6	Isolate PI 843	-	3.3	2.7	3.0	3.0	2.7	3.0	4.3	3.0	3.3	3.0	3.0	3.3	2.3	3.0
7	Isolate 92012	-	2.7	2.7	3.0	3.0	3.0	3.0	5.0	3.0	3.7	3.0	2.7	2.3	2.7	3.0
8	New isolate	Madhuri	3.0	3.3	2.3	3.0	3.0	3.0	4.3	3.0	2.7	3.0	3.3	3.0	3.0	3.0

**KERALA AGRICULTURAL UNIVERSITY
SUGARCANE RESEARCH STATION, THIRUVALLA
ANNUAL REPORT FOR 2011-2012**

1. Project No : P.P.22
2. Title : **Survey of sugarcane diseases naturally occurring in the area on important sugarcane varieties.**
3. Objective : To gather information on the diseases naturally occurring in the area on varieties for compiling an all India disease status report yearly
4. Location : Peninsular zone-Thiruvalla
Sugarcane Research Station, Thiruvalla
5. Year of start : 1989-90
6. Technical programme : Survey will be conducted in the sugarcane growing areas and to take periodic observations in June, September and December in all locations to gather information on the per cent incidence of diseases on all varieties of the area (General survey)
7. Phase to be covered during the : Survey of major diseases occurring in the area on important varieties and their identification period
8. Result :
 - (1). **Red rot:** The disease was observed only in very few pockets in Alapuzha district.
 - (2). **Pokkah Boeng:** This disease has been observed during the last two years in most of the varieties cultivated. The disease incidence is observed during the south- monsoon period of May- June. The plants show twisting and yellowing of young leaves, Leaves get converted to twine like structures and gets tied to main shoot. There is stunting of the plants. But, fortunately, all the affected plants are found to get recovered after the monsoon showers during July- August. No severe yield reduction is observed, since the plants are getting recovered.
 - (3). **Foliar diseases**
 - (a)**Ring spot:** This disease is the most common and predominant foliar disease observed even from two months age up to harvest. But proper field sanitation and detrashing at regular interval for two to three times can reduce the incidence of this disease.
 - (b).**Rust:** Rust disease was observed during this year in a severe form in several varieties. Uredospores were observed as light orange pustules on leaf lamina during the month of August, 2011. The next stage of teliospores was observed as black pustules as raised spots during Sepetember, 2011. The severely affected leaves got dried up. But any how the disease was not in such a level to cause yield reduction.
 - (4)**GSD:** Grassy shoot disease was not observed commonly. But was seen in some varieties obtained from Mandya for red rot resistance screening.
 - (5) **Mosaic:** Mosaic is seen commonly in most of the crop varieties, but the disease is not in such a stage to cause any severe yield reduction.
 - (6) **YLD:** This disease was noticed in some varieties cultivated in Pathanamthitta district as well as Kottayam district.

9. Discussion and summary :

Survey was conducted in three districts of South Kerala viz., Pathanamthitta, Alleppey and Kottayam districts. In the current year , the incidence of rust disease appeared to be more in several varieties. YLD disease was also noticed randomly in some plots. The other diseases observed as usual were ring spot ,mosaic, pokkah boeng and grassy shoot. But none of the diseases were in a severe stage to cause any drastic yield decline.

Signature of Scientist

Signature of Head of office

PP 22: Survey of naturally occurring sugarcane diseases

SI. No	Disease	Name of area surveyed	% Disease incidence	Varieties affected	Crop stage observed	Any other information
1.	Red rot	Iramallikkara, Pandanadu and Thiruvanmandoor of Alleppey district, Kuttor, Nedumbram, Venpala, Niranam and Thengeli of Pathanamthitta district and Aramanoor and Kidangoor of Kottayam district	Mild (Pandanadu)	Madhuri	7-8 month stage	-
2.	Smut	Disease not present in any area	-	-	-	-
3.	Wilt	Disease not present in any area	-	-	-	-
4.	RSD	Disease not present in any area	-	-	-	-
5.	YLD	Disease not present in any area	Iramallikkara & Thiruvanmandoor	Madhuri	6 months	-
6.	GSD	Iramallikkara, Pandanadu and Thiruvanmandoor of Alleppey district, Kuttor, Nedumbram, Venpala, Niranam and Thengeli of Pathanamthitta district and Aramanoor and Kidangoor of Kottayam district	Mild	Madhuri	2 months	Disease not normally present in our state
7.	Foliar diseases (a). Ring spot	Iramallikkara, Pandanadu and Thiruvanmandoor of Alleppey district, Kuttor, Nedumbram, Venpala, Niranam and Thengeli of Pathanamthitta district and Aramanoor and Kidangoor of Kottayam district	Moderate	Almost all the varieties planted	2 months onwards	Ring spot is associated with all varieties till harvest
	(b). Banded sclerotial disease	Iramallikkara, Pandanadu and Thiruvanmandoor of Alleppey district, Kuttor, Nedumbram, Venpala, Niranam and Thengeli of Pathanamthitta district and Aramanoor and Kidangoor of Kottayam district	Mild	-	2 months onwards	
8.	Other diseases a. Pokkah Boeng	Iramallikkara, Pandanadu and Thiruvanmandoor of Alleppey district, Kuttor, Nedumbram, Venpala, Niranam and Thengeli of Pathanamthitta district and Aramanoor and Kidangoor of Kottayam district	Mild	Madhuri	4-6 months	The disease disappeared after shower during July-August