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No. ARSS /AICRP/PP/29/ / 2014-15 Dated: 14.03.2014

To,
Dr. T.K. Srivastava,
Head,
Division of Crop Production,
IISR, Lucknow

Sir,

Sub: Submission of Annual report of AICRP on sugarcane Agronomy, 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 Agronomy, A.R.S., Sankeshwar for the year 2013-14 for your kind perusal and needful.

Thanking you Sir,

Yours faithfully,

(B.T. Nadagouda)
Agronomist
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

AGRONOMY EXPERIMENTAL DATA 2013-14

PROGRAMME FOR THE YEAR 2013-2014
SUGARCANE AGRONOMY

CONTENT

Expt. No.	Title of the project	Type of project	New/ Cont	Page no
As-42 (a)	AGRONOMIC EVALUATION OF PROMISING EARLY SUGARCANE GENOTYPES PC-I (OCTOBER)	AICRP	New	
As 64	RESPONSE OF SUGARCANE CROP TO DIFFERENT NUTRIENTS VARIED AGRO ECOLOGICAL SITUATIONS	AICRP	Cont.	
As 66	**PRIMING OF CANE NODE FOR ACCELERATING GERMINATION**	AICRP	Cont.	

YEARLY RESEARCH WORK PLAN FOR THE YEAR 2013–14

1	PROJECT NO.	AS-42 (A) (AICRP(S)
2	DEPARTMENT	SUGARCANE AGRONOMY
3	PROJECT TITLE	**AGRONOMIC EVALUATION OF PROMISING SUGARCANE GENOTYPES PC-I (OCTOBER)**
4	OBJECTIVES	TO WORK OUT AGRONOMY OF SUGARCANE VARIETIES FROM AVT TRIALS
5	PROJECT LEADER ASSOCIATE	DR. B.T. NADAGOUDA, AGRONOMIST, AICRP(S), ARS, SANKESHWAR DR. S. B. PATIL, BREEDER, AICRP(S), ARS, SANKESHWAR
6	NEW/CONTINUED	CONTINUED FOR PC-III
7	YEAR OF START	2010-2011(WITH CHANGE OF GENOTYPES)
8	Design	SPLIT PLOT
9	Treatments	Main – **VARIETIES** SUB - FERTILIZERS **V-1 -** CO 07015 **F-1** – 75 % RDF **V-2** – PI 07131 **F -2** – 100 % RDF **V-3 -** Co 94012 **F-3** – 125 % RDF **V-4** – co 07008 **V-5**- COSNK 07103 **V-6**- CO 86032
10	a) No. of Replication b) Plot size c) DOR d) DOH e) Plot No.	3 6 m x 3.6 m (4 rows) **31.12.2013** **18.02.2014** **17**

SOIL PROPERTIES TEST

TREATMENTS	**PH**	**EC DSM^{-1}**	**O.C. %**	**SOIL NUTRIENTS AVAILABLE (KG/HA)**		
				N	**P_2O_5**	**K_2O**
VARIETIES						
V-1 - Co 07015	6.7	0.21	0.57	160.0	18.8	309
V-2- PI 07131	6.7	0.20	0.57	166.0	21.2	325
V-3 - Co 94012	6.7	0.21	0.56	166.2	19.9	310
V-4 – Co 07008	6.7	0.21	0.56	167.2	22.8	318
V-5- CoSnk 07103	6.7	0.21	0.57	165.0	20.0	319
V-6- Co 86032	6.7	0.21	.056	160.3	21.0	318
FERTILIZERS						
F_1-75 % RDF	6.8	0.18	0.55	160.2	18.2	312
F_2-100 % RDF	6.7	0.22	0.58	162.0	19.8	316
F_3-125 % RDF	6.7	0.22	0.58	163.0	19.6	319
INITIAL SOIL	6.7	0.23	0.60	164.0	23.1	330

AS 42 (A): AGRONOMIC EVALUATION OF PROMISING SUGARCANE GENOTYPES Pooled PC-I and PC-II (Autumn) and Ratoon

A) Results of Ratoon crop (2013-14)

The Ratoon crop of PC-II was initiated during 2013-14 with 6 new genotypes and 3 levels of fertilizers. The results of ratoon crop 2013-14 are presented here

I. GROWTH PARAMETER'S

Germination% at 45 days, tillers at 90 days, Cane height were non significant with the influence of varieties as well as fertilizers. But cane girth was significantly higher in variety Co 94012 (2.33cm) and was on par with CoM 265 (2.20) over other varieties. Cane girth was significantly superior with 125% RDF (2.12cm) over 100% RDF (2.06 cm) and 75% RDF (2.04 cm)
Interaction effect was non significant

II. YIELD PARAMETER'S

Number of millable cane 000/ha were not influenced by the varieties in ratoon cane. But fertilizer level 125% RDF recorded significantly higher NMC (46200) and was on par with 100% RDF (45250). Single cane weight was significantly higher in Co 86032 (1.90 kg) and was on for with Co 94012 (1.73kg) over other varieties. Significantly higher cane weight was recorded with the application of 125% RDF (1.51 kg) over 100% RDF (1.42 kg) and 75% RDF(1.48 kg) Interaction effect was non significant.

Ratoon cane yield was significantly higher in CoM 265 (80.73 t/ha) and was on par with CoSnk 05102 (79.11 t/ha) and Co 94012 (75.28 t/ha) over other varieties. Increased levels of fertilizers have not influenced the cane yield. Interaction effect was non significant.

CCS yield t/ha was significantly superior in variety Co 94012 (11.02 t/ha) and was on per with Co 86032 (10.54 t/ha), CoSnk 05102 (9.59 t/ha) over other varieties tried. CCS yield t/ha was not significant with the fertilizer levels. Interaction effect was non significant.

III. Quality Parameters

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Brix% was significantly superior in Co 0403 (22.67) and par with Co 94012 (22.04) and Co 0409 (21.58) MS 0301 (21.38) over other varieties. Fertilizers did not influenced the Brix%

Pol % was significantly superior in Co 94012 (20.60) and was par with Co 0403 (19.94), Co 0409 (19.87) over other varieties Fertilizers did not influenced the Pol%

Purity was not influenced either by varieties or fertilizer levels.

CCS% was significantly superior in Co 94012 (14.60) and par with Co 0409 (14.01) and MS 0301 (13.85) over other varieties. Fertilizers ware not influenced CCS%. Interaction effect was non significant.

Summary:

In ratoon crop the variety CoM 265 was superior in cane yield and Co 94012 was superior in CCS yield. Varieties did not responded to fertilizers in ratoon crop.

AS 42 (A): AGRONOMIC EVALUATION OF PROMISING SUGARCANE GENOTYPES Pooled PC-I and PC-II (Autumn)

A) Pooled Results of PC I and PC II

The two years data of plant cane I and plant cane II ware pooled and results ware presented in table 1 to 12.

I. GROWTH PARAMETER'S

Germination% at 45 days, tillers at 90 days, Cane height were non significant with the influence of varieties as well as fertilizers. But cane girth was significantly higher in variety Co 94012 (3.1 3cm) and was on par with CoM 265 (3.01) over other varieties. Cane girth was significantly superior ware 125% RDF was applied (2.92cm) and on par with 100% RDF fertilizer levels (2.88 cm) over 75% RDF (2.8 4 cm). Interaction effect was non significant

II. YIELD PARAMETER'S

Number of millable cane 000/ha were not influenced by the varieties. But fertilizer level 125% RDF recorded significantly higher NMC (71630) and was on par with 100% RDF (70240). Single cane weight was significantly higher in CoM 265 (2.15kg) and was on for Co 94012 (2.00kg) over other varieties. Significantly higher cane weight was recorded with the application of 125% RDF (1.77kg) and was on par with 75% RDF (1.75 kg) over 100% RDF(1.68kg) Interaction effect was non significant.

Pooled cane yield was significantly higher in CoM 265 (148.88 t/ha) and was on for with Co 94012 (135.60 t/ha) over other varieties. Increased levels of fertilizers have influenced significantly and cane yield was higher in 125% RDF (125.82 t/ha) over 100% RDF (117.42 t/ha). Interaction effect was non significant.

CCS yield t/ha was significantly superior in variety Co 94012 (19.09 t/ha) and was on per with CoM 265 (19.75 t/ha), over other varieties tried. CCS yield t/ha was significantly superior in 125% RDF (16.91t/ha) and was on par with 70% RDF (16.46 t/ha) over 100% RDF (15.89 t/ha). Interaction effect was non significant.

III. Quality Parameters

Brix% was significantly superior in Co 94012 (22.44) and was on par with Co 0409 (21.98) MS 0301 (21.79) over other varieties. Fertilizers did not influenced the Brix%.

Pol % was significantly superior in Co 94012 (21.00) and was par with Co 0403 (20.34), Co 0409 (20.27) over other varieties Fertilizers did not influenced the Pol% Purity was not influenced either by varieties or fertilizer levels.

CCS% was significantly superior in Co 94012 (14.88) and par with Co 0409 (14.27) and MS 0301 (14.10) over other varieties. Fertilizers ware not influenced CCS%. Interaction effect was non significant.

Summary:

In pooled data the variety CoM 265 was superior in cane yield and Co 94012 was superior in CCS yield.Vartieieties responded upto 125% fertilizers.

The varieties Co 94012 and CoM 265 ware good in plant cane as well as ratoon cane (Good ratooners).

Table-1: GROWTH PARAMETERS OF SUGARCANE GENOTYPES AS INFLUENCED BY FERTILIZER LEVELS ON PLANT CANE AND RATOON

Treatments	Germination% At 45 Dap			
	2010-11	**2011-12**	**2013-14**	**Ratoon 2012-13**
Varieties (V)				
V-1 - Co 07015	67.12	57.44	62.25	57.25
V-2- PI 07131	66.69	56.88	61.86	56.86
V-3 - Co 94012	68.90	58.66	63.81	58.11
V-4 – Co 07008	68.26	58.11	63.25	58.25
V-5-CoSnk 07103	67.67	57.77	62.68	57.68
V-6- Co 86032	68.93	58.66	63.84	58.84
Cv%	6.75	5.92	6.36	6.91
S.Em +	1.52	1.14	Ns	1.33
C.D. @ 5 %	Ns	Ns	Ns	Ns
Fertilizers (F)				
F1-75 % Rdf	68.04	57.88	63.06	58.06
F2-100 % Rdf	68.09	58.16	63.10	58.10
F3-125 % Rdf	67.63	57.72	62.69	57.69
Cv%	6.75	5.92	6.36	6.91
S.Em +	1.18	0.89	Ns	1.04
C.D. @ 5 %	NS	NS	NS	NS
Vxf	NS	NS	NS	

TABLE-2: GROWTH PARAMETERS OF SUGARCANE GENOTYPES AS INFLUENCED BY FERTILIZER LEVELS ON PLANT CANE AND RATOON

Treatments	**Tillers AT 90 DAP 000/HA**			
	2010-11	2011-12	2013-14	Ratoon 2012-13
Varieties (V)				
V-1 - Co 07015	108	110	109	67.44
V-2- PI 07131	111	113	112	70.12
V-3 - Co 94012	108	110	109	60.44
V-4 – Co 07008	112	113	112.5	71.12
V-5-CoSnk 07103	118	110	114	67.12
V-6- Co 86032	114	114	114	60.88
CV%	20.95	20.81	20.88	24.83
S.EM +	7.67	7.75	7.71	5.69
C.D. @ 5 %	NS	NS	NS	NS
Fertilizers (F)				
F1-75 % RDF	111	113	112	69.93
F2-100 % RDF	109	111	110	68.23
F3-125 % RDF	108	112	110	68.18
CV%	20.95	20.81	20.88	24.8
S.EM +	2.50	2.51	2.505	1.83
C.D. @ 5 %	NS	NS	NS	NS
VXF	NS	NS	NS	NS

TABLE-3: GROWTH PARAMETERS OF SUGARCANE GENOTYPES AS INFLUENCED BY FERTILIZER LEVELS ON PLANT CANE AND RATOON

Treatments	Cane Hight in cm			
	2010-11	2011-12	2013-14	Ratoon 2012-13
Varieties (v)				
V-1 - Co 07015	2.61	2.38	2.50	1.85
V-2- PI 07131	2.89	2.68	2.79	1.98
V-3 - Co 94012	2.74	2.61	2.68	1.67
V-4 – Co 07008	2.54	2.37	2.46	1.81
V-5-CoSnk 07103	3.05	2.62	2.84	2.01
V-6- Co 86032	3.09	2.70	2.90	2.81
CV%	8.93	13.88	11.41	18.77
S.EM +	0.08	11.87	5.98	5.92
C.D. @ 5 %	0.26	NS	NS	NS
Fertilizers (f)				
F1-75 % RDF	2.70	2.54	2.62	1.91
F2-100 % RDF	2.84	2.55	2.70	2.02
F3-125 % RDF	2.92	2.60	2.76	2.05
CV%	8.93	13.88	11.41	18.77
S.EM +	0.03	4.17	2.10	2.08
C.D. @ 5 %	0.09	NS	NS	NS
VXF	**NS**	**NS**	**NS**	NS

TABLE-4: GROWTH PARAMETERS OF SUGARCANE GENOTYPES AS INFLUENCED BY FERTILIZER LEVELS ON PLANT CANE AND RATOON

Treatments	Cane girth in cm			
	2010-11	2011-12	2013-14	Ratoon 2012-13
Varieties (v)				
V-1 - Co 07015	2.64	2.6	2.67	1.86
V-2- PI 07131	2.96	2.7	2.87	2.08
V-3 - Co 94012	2.77	2.9	2.85	2.04
V-4 – Co 07008	2.78	2.7	2.75	1.94
V-5-CoSnk 07103	3.21	3.0	3.13	2.33
V-6- Co 86032	3.02	2.9	3.01	2.20
CV%	6.37	12.77	6.85	9.87
S.EM +	0.06	0.12	0.06	0.06
C.D. @ 5 %	0.19	NS	0.20	0.21
Fertilizers (f)				
F1-75 % RDF	2.90	2.78	2.84	2.04
F2-100 % RDF	2.85	2.87	2.88	2.06
F3-125 % RDF	2.93	2.93	2.92	2.12
CV%	0.03	12.77	6.85	9.87
S.EM +	0.10	0.03	0.02	0.01
C.D. @ 5 %	NS	0.10	0.06	0.05
VXF	NS	NS	NS	NS

TABLE-5: GROWTH PARAMETERS OF SUGARCANE GENOTYPES AS INFLUENCED BY FERTILIZER LEVELS ON PLANT CANE AND RATOON

Treatments	NMC 000/HA			
	2010-11	2011-12	2013-14	Ratoon 2012-13
Varieties (v)				
V-1 - Co 07015	69.09	73.71	71.40	46.40
V-2- PI 07131	67.45	72.07	69.76	44.76
V-3 - Co 94012	67.70	72.32	70.01	45.02
V-4 – Co 07008	68.06	72.68	70.37	45.37
V-5-CoSnk 07103	66.06	70.69	68.37	43.37
V-6- Co 86032	67.14	71.76	69.45	44.44
CV%	4.06	3.80	3.93	6.08
S.EM +	0.91	0.91	0.91	0.91
C.D. @ 5 %	NS	NS	NS	NS
Fertilizers (f)				
F1-75 % RDF	65.50	70.12	67.81	42.81
F2-100 % RDF	67.93	72.55	70.24	45.25
F3-125 % RDF	69.32	73.94	71.63	46.62
CV%	4.06	3.80	3.93	6.08
S.EM +	0.67	0.67	0.67	0.67
C.D. @ 5 %	1.96	1.96	1.96	1.95
VXF	NS	NS	NS	NS

TABLE-6: YIELD PARAMETERS OF SUGARCANE GENOTYPES AS INFLUENCED BY FERTILIZER LEVELS ON PLANT CANE AND RATOON

Treatments	Single cane weight in Kg			
	2010-11	2011-12	2013-14	Ratoon 2012-13
Varieties (v)				
V-1 - Co 07015	1.57	1.11	1.34	1.08
V-2- PI 07131	2.22	1.51	1.86	1.58
V-3 - Co 94012	1.84	1.45	1.65	1.39
V-4 – Co 07008	1.66	1.14	1.40	1.16
V-5-CoSnk 07103	2.39	1.60	2.00	1.73
V-6- Co 86032	2.31	1.98	2.15	1.9
CV%	11.98	14.11	11.39	12.97
S.EM +	0.08	0.06	0.06	0.06
C.D. @ 5 %	0.25	0.21	0.20	0.20
Fertilizers (f)				
F1-75 % RDF	1.91	1.39	1.75	1.48
F2-100 % RDF	1.97	1.43	1.68	1.42
F3-125 % RDF	2.11	1.58	1.77	1.51
CV%	11.98	14.11	11.39	12.97
S.EM +	0.02	0.04	0.02	0.02
C.D. @ 5 %	0.06	0.01	0.07	0.06
VXF	NS	NS	NS	0.23

TABLE-7: YIELD PARAMETERS OF SUGARCANE GENOTYPES AS INFLUENCED BY FERTILIZER LEVELS ON PLANT CANE AND RATOON

Treatments	Cane Yield			
	2010-11	2011-12	2013-14	Ratoon 2012-13
Varieties (V)				
V-1 - Co 07015	109.24	82.31	95.77	45.78
V-2- PI 07131	150.04	108.19	129.11	79.11
V-3 - Co 94012	124.80	104.86	114.83	64.82
V-4 – Co 07008	113.43	82.72	98.78	48.07
V-5-CoSnk 07103	157.92	113.28	135.60	75.28
V-6- Co 86032	155.61	142.15	148.88	80.73
CV%	10.78	12.30	9.75	11.72
S.EM +	4.85	4.32	3.91	2.56
C.D. @ 5 %	15.30	13.63	12.32	8.07
Fertilizers (F)				
F1-75 % RDF	125.25	100.84	117.89	65.17
F2-100 % RDF	134.00	105.38	117.42	64.25
F3-125 % RDF	146.26	110.53	125.82	67.48
CV%	10.78	12.30	9.75	11.72
S.EM +	2.46	2.90	2.15	1.61
C.D. @ 5 %	6.55	8.49	6.29	NS
VXF	19.31	NS	NS	NS

TABLE-8: YIELD PARAMETERS OF SUGARCANE GENOTYPES AS INFLUENCED BY FERTILIZER LEVELS ON PLANT CANE AND RATOON

Treatments	CCS Yield t/ha			
	2010-11	2011-12	2013-14	Ratoon 2012-13
Varieties (V)				
V-1 - Co 07015	14.87	11.97	13.42	6.31
V-2- PI 07131	14.18	16.68	15.43	9.59
V-3 - Co 94012	15.92	16.24	16.10	8.98
V-4 – Co 07008	14.69	13.05	13.87	6.73
V-5-CoSnk 07103	21.30	18.60	19.95	11.02
V-6- Co 86032	17.62	16.87	19.75	10.54
CV%	12.32	18.92	13.22	15.39
S.EM +	0.67	1.03	0.72	0.45
C.D. @ 5 %	2.12	3.25	2.28	1.43
Fertilizers (F)				
F1-75 % RDF	15.34	15.42	16.46	8.95
F2-100 % RDF	16.37	16.21	15.89	8.62
F3-125 % RDF	17.60	17.57	16.91	9.02
CV%	12.32	18.92	13.22	15.39
S.EM +	0.83	0.56	0.37	0.23
C.D. @ 5 %	2.44	1.63	1.09	NS
VXF	NS	NS	NS	NS

TABLE-9: YIELD PARAMETERS OF SUGARCANE GENOTYPES AS INFLUENCED BY FERTILIZER LEVELS ON PLANT CANE AND RATOON

Treatments	Brix %			
	2010-11	2011-12	2013-14	Ratoon 2012-13
Varieties (V)				
V-1 - Co 07015	22.06	20.06	21.06	22.67
V-2- PI 07131	16.54	21.32	18.93	18.54
V-3 - Co 94012	20.30	23.28	21.79	21.38
V-4 – Co 07008	20.43	23.53	21.98	21.58
V-5-CoSnk 07103	21.66	23.22	22.44	22.04
V-6- Co 86032	19.01	22.02	20.52	20.11
CV%	3.56	7.86	5.71	4.77
S.EM +	0.23	0.6	0.42	0.33
C.D. @ 5 %	0.74	NS	1.35	1.05
Fertilizers (F)				
F1-75 % RDF	22.06	20.06	21.06	21.20
F2-100 % RDF	16.54	21.32	18.93	21.22
F3-125 % RDF	20.30	23.28	21.79	20.95
CV%	3.56	7.86	5.11	4.77
S.EM +	4.37	5.48	5.51	0.12
C.D. @ 5 %	NS	NS	NS	NS
VXF	NS	NS	NS	NS

TABLE-10: QUALITY PARAMETERS OF SUGARCANE GENOTYPES AS INFLUENCED BY FERTILIZER LEVELS ON PLANT CANE AND RATOON

Treatments	CCS %			
	2010-11	2011-12	2013-14	Ratoon 2012-13
Varieties (V)				
V-1 - Co 07015	13.61	14.5	14.06	13.77
V-2- PI 07131	9.49	15.3	12.40	12.11
V-3 - Co 94012	12.80	15.4	14.10	13.85
V-4 – Co 07008	12.94	15.6	14.27	14.01
V-5-CoSnk 07103	13.46	16.3	14.88	14.60
V-6- Co 86032	11.46	15.3	13.38	13.07
CV%	4.39	11.73	8.06	6.81
S.EM +	0.18	0.60	0.39	0.30
C.D. @ 5 %	0.56	NS	0.97	0.99
Fertilizers (F)				
F1-75 % RDF	12.33	15.7	14.02	13.76
F2-100 % RDF	12.31	15.2	13.76	13.48
F3-125 % RDF	12.18	15.3	13.74	13.47
CV%	4.39	11.73	8.06	6.81
S.EM +	0.13	0.27	0.20	0.14
C.D. @ 5 %	NS	NS	NS	NS
VXF	NS	NS	NS	NS

TABLE-11 : QUALITY PARAMETERS OF SUGARCANE GENOTYPES AS INFLUENCED BY FERTILIZER LEVELS ON PLANT CANE AND RATOON

Treatments	POL %			
	2010-11	2011-12	2013-14	Ratoon 2012-13
Varieties (V)				
V-1 - Co 07015	19.62	21.07	20.34	19.94
V-2- PI 07131	14.01	21.08	17.55	17.15
V-3 - Co 94012	18.33	21.80	20.07	19.67
V-4 – Co 07008	18.50	22.04	20.27	19.87
V-5-CoSnk 07103	19.35	22.61	21.00	20.60
V-6- Co 86032	16.53	21.34	18.93	18.53
CV%	3.38	8.10	4.73	4.82
S.EM +	0.20	0.58	0.31	0.31
C.D. @ 5 %	0.62	NS	0.97	0.97
Fertilizers (F)				
F1-75 % RDF	17.81	22.03	19.93	19.53
F2-100 % RDF	17.76	21.43	19.58	19.18
F3-125 % RDF	17.61	21.51	19.57	19.17
CV%	3.38	8.10	4.73	4.82
S.EM +	0.13	0.25	0.14	0.14
C.D. @ 5 %	NS	NS	NS	NS
VXF	NS	NS	NS	NS

TABLE-12 : QUALITY PARAMETERS OF SUGARCANE GENOTYPES AS INFLUENCED BY FERTILIZER LEVELS ON PLANT CANE AND RATOON

Treatments	PURITY %			
	2010-11	2011-12	2013-14	Ratoon 2012-13
Varieties (V)				
V-1 - Co 07015	88	87	88	89
V-2- PI 07131	84	99	92	93
V-3 - Co 94012	90	93	92	91
V-4 – Co 07008	90	94	92	90
V-5-CoSnk 07103	89	98	94	93
V-6- Co 86032	87	97	92	92
CV%	3.56	10.64	6.89	5.84
S.EM +	1.04	3.36	1.76	1.78
C.D. @ 5 %	3.3	NS	NS	NS
Fertilizers (F)				
F1-75 % RDF	88	96	92	91
F2-100 % RDF	88	93	91	91
F3-125 % RDF	88	94	91	90
CV%	3.56	10.64	6.89	5.84
S.EM +	0.78	1.57	0.83	0.87
C.D. @ 5 %	NS	NS	NS	NS
VXF	NS	NS	NS	NS

YEARLY RESEARCH WORK PLAN FOR THE YEAR 2013–14

1	PROJECT NO.	AS-62 (AICRP)
2	DEPARTMENT	SUGARCANE AGRONOMY
3	PROJECT TITLE	**AS-64 : Response of sugarcane crop to different nutrients varied agro ecological situation**
4	OBJECTIVES	TO FIND OUT RESPONSE OF DIFFERENT NUTRIENTS
5	PROJECT LEADER	DR. B.T. NADAGOUDA, AGRONOMIST, AICRP(S), ARS, SANKESHWAR
6	NEW/CONTINUED	New
7	YEAR OF START	2010-2011
8	DESIGN	RBD
9	treatments	12
	Treatments : 1. Control (No Fertilizer 2. N 3. np 4. npk 5. npk+s 6. npk+zN 7. npk+fE 8. npk+mN 9. npk+s+zN 10. npk+s+zN+FE 11. npk+s+zN+FE+MN 12. FYM/CSPMC @ 20 T/HA	NOTE : S: 60 kg /hA ZN : 50 KG /HA FE : 12.5 KG /HA MN : 10 KG / HA NPK: 250 : 75 :190 KG / HA
10	A) NO. OF REPLICATION B) PLOT SIZE C) DOP D) PLOT NO.	3 6 ROWS OF 6 m (5.4 X 6M) 29.01.2013 03

Nutrient availability before planting

Treatments	PH	EC DSM^{-1}	O.C. %	SOIL NUTRIENTS AVAILABLE (KG/HA)		
				N	P_2O_5	K_2O
VARIETIES						
1	6.7	0.21	0.57	260.0	18.8	309
2	6.7	0.20	0.57	266.0	21.2	325
3	6.7	0.21	0.56	266.2	19.9	310
4	6.7	0.21	0.56	267.2	22.8	318
5	6.7	0.21	0.57	265.0	20.0	319
6	6.7	0.21	0.56	260.3	21.0	318
7	6.8	0.18	0.55	260.2	18.2	312
8	6.7	0.22	0.58	262.0	19.8	316
9	6.7	0.22	0.58	263.0	19.6	319
10	6.7	0.23	0.60	264.0	23.1	330
11	6.7	0.21	0.56	267.2	22.8	318
12	6.7	0.22	0.58	263.0	19.6	319

AS-64 : RESPONSE OF SUGARCANE CROP TO DIFFERENT NUTRIENTS VARIED AGRO ECOLOGICAL SITUATION

This experiment was started during 2010-11. Fist year result were presented

1. Growth parameter

Germination % was significantly superior in T6 NPK+Zn (59.64%) and was on par with T8 NPK+Mn (59.03%) T12 FYM/CSPMC @ 20 t/ha (58.02%) T9 NPK+S+Zn (57.10%) and T10 NPK+S+Zn+Fe (56.48%) over control T1 Control (No fertilizer) (51.54%).

Tillers, were significantly superior in T9 NPK+S+Zn (122000/ha), T5 NPK+S (117000/ha), T6 NPK+Zn (115000/ha), and T10 NPK+S+Zn+Fe (113000/ha) over T1 Control (No fertilizer) (102000/ha). Cane height and cane girth were not influenced by the nutrients treatments.

2. Yield parameters

There was significant difference in Number of millable canes. T10 NPK+S+Zn+Fe recorded significantly higher NMC (99000/ha) and was on per with T11 NPK+S+Zn+Fe+Mn (94000/ha) over other treatments and control T1 (80000/ha)
There was no significant difference in single cane weight

Significantly higher cane yield was recorded in T10 NPK+S+Zn+Fe(115.29t/ha) over T1 Control (No fertilizer) (96.20t/ha)

CCS yield was significantly superior in T10 NPK+S+Zn+Fe (15.86t/ha) followed by T12 FYM/CSPMC @ 20 t/ha (15.59t/ha) and T11 NPK+S+Zn+Fe+Mn(15.58t/ha) over control (13.44t/ha)

3. Quality parameters

Quality parameters like Brix, was non significant. POL%, was significantly higher in T12 FYM/CSPMC @ 20 t/ha(22.05%) over control (20.24%) Purity% was significantly higher in T12 FYM/CSPMC @ 20 t/ha (93%) over control (88%) and CCS % was significantly superior in T12 FYM/CSPMC @ 20 t/ha (15.62%) over control (13.98%)

Conclusion:

Application of balanced recommended fertilizers (RDF NPK 250; 75; 190; kg/ ha) along with Sulphur 60 kg /ha+ Zinc 50kg /ha + Ferrous12.5 kg /ha will give higher cane yield and CCS yield

Table - 1 : Growth Parameters as influenced by different sources of Nutrients

Treatments	Germination %			Tiller at 90 days 000/ha		
	2011-12	2012-13	2013-14	2011-12	2012-13	2013-14
T 1 - Control (No Fertilizer)	51.54	52.7	52.1	77	80.13	78.56
T 2 – N	52.39	53.55	52.9	80	83.52	81.76
T 3 – NP	52.00	53.16	52.5	85	89.82	87.41
T 4 – NPK	52.78	53.93	53.3	111	114.88	112.94
T 5 - NPK+S	54.39	55.55	54.9	117	120.22	118.61
T 6 - NPK+Zn	59.64	60.80	60.2	115	118.88	116.94
T 7 - NPK+Fe	55.63	56.79	56.2	108	111.49	109.745
T 8 - NPK+Mn	59.03	60.18	59.6	118	121.96	119.98
T 9 - NPK+S+Zn	57.10	58.26	57.6	122	125.56	123.78
T 10 - NPK+S+Zn+Fe	56.48	57.63	57.06	113	116.83	114.915
T 11 - NPK+S+Zn+Fe+Mn	54.16	55.32	54.74	112	115.8	113.9
T 12 - FYM/CSPMC @ 20 T/Ha	58.02	59.18	58.60	111	114.98	112.99
T 13 - Soil test based		55.24	55.24		107.08	107.08
CV%	5.79	5.45	5.73	5.17	4.94	3.00
S.EM +	1.84	1.77	1.84	3.36	3.28	1.81
C.D. @ 5 %	5.42	5.17	5.42	9.86	9.58	5.33

Table - 2 : Growth Parameters as influenced by different sources of Nutrients

Treatments	Cane height in cm			Cane girth in cm		
	2011-12	2012-13	2013-14	2011-12	2012-13	2013-14
T 1 - Control (No Fertilizer)	284	276	280	2.30	2.40	2.35
T 2 – N	278	270	274	2.31	2.41	2.36
T 3 – NP	288	280	284	2.33	2.42	2.38
T 4 – NPK	277	269	273	2.32	2.43	2.38
T 5 - NPK+S	286	278	282	2.26	2.36	2.31
T 6 - NPK+Zn	274	266	270	2.27	2.38	2.33
T 7 - NPK+Fe	269	261	265	2.40	2.50	2.45
T 8 - NPK+Mn	273	265	269	2.40	2.33	2.37
T 9 - NPK+S+Zn	285	277	281	2.42	2.43	2.43
T 10 - NPK+S+Zn+Fe	284	276	280	2.26	2.36	2.31
T 11 - NPK+S+Zn+Fe+Mn	280	272	276	2.30	2.40	2.35
T 12 - FYM/CSPMC @ 20 T/Ha	281	273	277	2.16	2.26	2.21
T 13 - Soil test based		261	261		2.53	2.53
CV%	5.42	5.78	5.50	7.99	7.42	7.66
S.EM +	8.76	9.25	8.76	0.10	0.10	0.106
C.D. @ 5 %	NS	NS	NS	NS	NS	ns

Table - 3 : Yield Parameters as influenced by different sources of Nutrients

Treatments	NMC 000/HA			Single cane weight in kg		
	2011-12	**2012-13**	**2013-14**	**2011-12**	**2012-13**	**2013-14**
T 1 - Control (No Fertilizer)	80	83	82.00	0.76	0.78	0.77
T 2 – N	81	84	82.6	1.06	1.9	1.48
T 3 – NP	83	86	84.6	1.03	1.8	1.42
T 4 – NPK	86	89	88.3	1.80	1.7	1.75
T 5 - NPK+S	85	88	87.0	1.86	1.8	1.83
T 6 - NPK+Zn	87	90	89.3	1.76	1.7	1.73
T 7 - NPK+Fe	89	92	90.6	1.70	1.9	1.80
T 8 - NPK+Mn	80	83	82.0	1.78	1.8	1.79
T 9 - NPK+S+Zn	90	93	91.6	1.80	1.9	1.85
T 10 - NPK+S+Zn+Fe	99	102	101.3	2.03	1.8	1.92
T 11 - NPK+S+Zn+Fe+Mn	94	97	96.0	1.86	1.6	1.73
T 12 - FYM/CSPMC @ 20 T/Ha	84	87	86.0	1.81	1.7	1.76
T 13 - Soil test based		98	98.0		1.8	1.8
CV%	2.86	2.76	2.71	7.90	6.96	7.66
S.EM +	1.34	1.44	1.38	0.08	0.07	0.08
C.D. @ 5 %	3.94	4.22	4.05	0.28	NS	0.25

Table - 4 : Yield Parameters as influenced by different sources of Nutrients

Treatments	**Cane Yield t/ha**			**CCS Yield t/ha**		
	2011-12	**2012-13**	**2013-14**	**2011-12**	**2012-13**	**2013-14**
T 1 - Control (No Fertilizer)	56.20	50.30	53.23	9.44	6.98	7.42
T 2 – N	67.81	62.52	65.03	10.35	8.49	8.89
T 3 – NP	69.56	64.03	66.83	10.76	8.82	9.27
T 4 – NPK	102.05	98.56	100.73	14.15	13.52	13.89
T 5 - NPK+S	101.12	97.63	99.55	14.21	13.59	13.92
T 6 - NPK+Zn	103.28	99.69	101.74	13.95	13.28	13.66
T 7 - NPK+Fe	104.82	101.33	103.50	14.70	14.08	14.45
T 8 - NPK+Mn	96.09	73.09	84.80	13.56	10.26	11.93
T 9 - NPK+S+Zn	105.64	112.42	109.75	14.99	15.77	15.49
T 10 - NPK+S+Zn+Fe	115.29	122.07	118.90	15.86	16.59	16.23
T 11 - NPK+S+Zn+Fe+Mn	109.75	116.52	113.00	15.58	16.35	15.95
T 12 - FYM/CSPMC @ 20 T/Ha	99.75	106.57	103.21	15.59	16.47	16.04
T 13 - Soil test based		120.83	120.83		16.53	16.53
CV%	12.27	11.83	6.51	4.07	12.05	7.31
S.EM +	1.34	6.44	3.50	0.33	0.91	0.5
C.D. @ 5 %	3.93	18.80	10.28	0.99	2.66	1.62

Table - 5 : Quality parameters as influenced by different sources of nutrients

Treatments	BRIX %			POL %		
	2011-12	2012-13	2013-14	2011-12	2012-13	2013-14
T 1 - Control (No Fertilizer)	22.96	22.50	22.85	20.24	19.73	20.13
T 2 – N	23.06	22.63	22.95	20.80	19.97	19.97
T 3 – NP	23.46	22.53	23.35	20.37	19.88	20.26
T 4 – NPK	23.33	23.03	23.22	20.23	19.90	20.12
T 5 - NPK+S	23.43	22.93	23.32	20.45	19.95	20.34
T 6 - NPK+Zn	23.49	23.06	23.38	19.94	20.23	19.83
T 7 - NPK+Fe	23.26	23.50	23.15	20.37	19.76	20.26
T 8 - NPK+Mn	23.53	23.36	23.42	20.53	20.20	20.42
T 9 - NPK+S+Zn	23.89	23.56	23.78	20.72	20.58	20.61
T 10 - NPK+S+Zn+Fe	23.36	23.06	23.25	20.13	20.14	20.02
T 11 - NPK+S+Zn+Fe+Mn	23.66	23.63	23.55	20.65	20.41	20.54
T 12 - FYM/CSPMC @ 20 T/Ha	23.69	23.03	23.58	22.05	20.33	21.94
T 13 - Soil test based		23.33	25.33		20.71	20.71
CV%	2.92	2.89	2.93	2.61	3.12	2.62
S.EM +	0.39	0.38	0.39	0.30	0.36	0.30
C.D. @ 5 %	NS	NS	NS	0.90	NS	0.90

Table - 6 : Quality parameters as influenced by different sources of nutrients

Treatments	CCS %			PURITY %		
	2011-12	2012-13	2013-14	2011-12	2012-13	2013-14
T 1 - Control (No Fertilizer)	13.98	13.60	13.89	88	88	88.00
T 2 – N	13.79	13.80	13.70	87	87	87.00
T 3 – NP	13.96	13.73	13.88	87	86	86.50
T 4 – NPK	13.86	13.61	13.78	86	86	86.00
T 5 - NPK+S	14.05	13.69	13.97	87	87	87.00
T 6 - NPK+Zn	13.51	13.94	13.43	85	85	85.00
T 7 - NPK+Fe	14.02	13.33	13.94	87	87	87.00
T 8 - NPK+Mn	14.11	13.83	14.02	87	87	87.00
T 9 - NPK+S+Zn	14.20	14.15	14.11	87	86	86.50
T 10 - NPK+S+Zn+Fe	13.75	13.84	13.67	86	86	86.00
T 11 - NPK+S+Zn+Fe+Mn	14.20	13.96	14.11	87	87	87.00
T 12 - FYM/CSPMC @ 20 T/Ha	15.62	14.06	15.53	93	93	93.00
T 13 - Soil test based		14.36	14.36		88	88.00
CV%	2.98	3.89	2.98	2.01	1.95	1.98
S.EM +	0.24	0.31	0.24	1.01	0.98	1.00
C.D. @ 5 %	0.71	NS	0.70	2.98	2.87	2.93

YEARLY RESEARCH WORK PLAN FOR THE YEAR 2013-14

1	PROJECT NO.	AICRP
2	DEPARTMENT	SUGARCANE AGRONOMY
3	PROJECT TITLE	AS-66 PRIMING OF CANE NODE FOR ACCELERATING GERMINATION
4	OBJECTIVES	1. TO FIND OUT SUITABLE CANE NODE PRIMING TECHNIQUE 2. TO ACCESS THE EFFECT OF CANE NODE ON ACCELERATION OF GERMINATION
5	PROJECT LEADER ASSOCIATE	DR. B.T. NADAGOUDA, AGRONOMIST, AICRP(S)
6	NEW/CONTINUED	PLANT CANE II
7	YEAR OF START	2012-2013
8	DESIGN	RBD
9	Treatment details	

N ↓

R3	**5**	**7**	**1**	**2**	**4**	**3**	**6**
R2	**1**	**2**	**3**	**4**	**5**	**6**	**7**
R1	**7**	**6**	**5**	**4**	**3**	**2**	**1**

T1 : un-primed cane node
T2 : Treating cane node in hot water in 50^0 c for 2 hrs.
t3 : treating cane node in tot water (50^0) in urea solution (3%) for 2 HRS
t4 : priming cane node with cattle dung, cattle urine and water in 1:2:5 ratio
t5 : conventional 3 bud sett planting
t6 : primed and spouted cane node (incubated for four days after priming)
T7 : Chemical seed treatment
(PUT THE SINGLE CANE NODE IN THE SLURRY OF CATTLE DUNG URINE AND WATER FOR 15 MINUTES. TAKE OUT THE BUDS AND PUT IN DECOMPOSED fym AND COVER IT WITH SUGARCANE TRASH FOR 4-5 DAYS FOR SPROUTING)

10	A) NO. OF REPLICATION	4
	B) PLOT SIZE	5.4 X 6 m
	C) DATE OF PLANTING	02/01/2013
	D) PLOT NO.	4

This trial was initiated during 2013-14 but germination was recorded at 60 days is as detailed below

	Treatments	Average of 4 replication
T1	**Un-primed cane node**	48% germination
T2	**Treating cane node in hot water in 50^0 c for 2 hrs.**	No germination
T3	**Treating cane node in tot water (50^0) in urea solution (3%) for 2 hrs**	No germination
T4	**Priming cane node with cattle dung, cattle urine and water in 1:2:5 ratio**	20% germination
T5	**Conventional 3 bud sett planting**	46% germination
T6	**Primed and spouted cane node (incubated for four days after priming)**	55% germination

Conclusion: As the germination was affected with hot water treatment in treatment no. T2 and T3 and poor germination in T4 so the trial was vitiated

Comments received during Agronomist Meet of U.A.S., Dharwad

1. It is highly impossible to treat the 12000 No.s setts of 3 eye bud or 6000 setts of single bud in 50^0 C hot water for two hours for the farmers.
2. Cowdung and urine ware not available with all sugarcane growers.

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