UNIVERSITY OF AGRICULTURAL SCIENCES DHARWAD

AGRICULTURAL RESEARCH STATION SANKESHWAR

ALL INDIA CO-ORDINATED RESEARCH PROJECT ON SUGARCANE

CROP PRODUCTION DIVISION

2016-17

UNIVERSITY OF AGRICULTURAL SCIENCES, DHARWAD

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No.ARSS/AICRP/ / /2017-18 Date: 13.06.2017

To,
Dr. S.K. Shukla
Project Coordinator (Sugarcane)
AICRP on Sugarcane,
Indian Institute of Sugarcane Research,
Lucknow - 226 002

Sir,

Sub: Submission of AICRP (S) agronomy data reg…

With reference to above I am here with submitting the AICRP (S) agronomy data of trials conducted at ARS, Sankeshwar during 2016-17.

This is for your kind information and needful.

With regards,

Yours faithfully

B.T.Nadagouda
Agronomist
AICRP on Sugarcane
ARS, Sankeshwar 591 314

Copy Submitted to,

Dr. T.K.Srivastava, Principal Investigator Crop Production, IISR, Lucknow 226 002 for kind information

YEARLY RESEARCH WORK PLAN FOR THE YEAR 2016-2017

1	**Project No.**	AICRP (AS 68)
2	**Department**	Sugarcane Agronomy
3	**Project title**	Impact of integrated application of organics and inorganics in improving soil health and sugarcane productivity
4	**Objectives**	To develop nutrient management strategy for sustaining soil health and sugarcane production
5	**Project leader Associate**	Dr. B.T. Nadagouda, Agronomist, AICRP (S)
6	**New/continued**	Ratoon I (continued)
7	**Year of start**	2014-15
8	**design**	RBD
9	**Treatment details**	

Treatment	**Sugarcane (Plant crop)**	**Ratoon - I**	**Ratoon - II**
T1	No organic + 50% RDF	Application of trash at 10 tonnes / ha + 50% RDF	Application of trash at 10 tonnes/ha + 50% RDF
T2	No organic + 100% RDF	Application of trash at 10 tonnes / ha + 100% RDF	Application of trash at 10 tonnes / ha + 100% RDF
T3	No organic + soil test based recommendation	Application of trash at 10 tonnes/ha + soil test basis (NPK application)	Application of trash at 10 tonnes/ha + soil test basis (NPK application)
T4	Application of FYM /Compost @ 20 tonnes/ha + 50% RDF (inorganic source)	Application of FYM /Compost @ 20 tonnes/ha + 50% RDF (inorganic source)	Application of FYM /Compost @ 20 tonnes/ha + 50% RDF (inorganic source)
T5	Application of FYM/Compost @ 20 tonnes /ha + 100% RDF (inorganic source)	Application of FYM/Compost @ 20 tonnes /ha + 100% RDF (inorganic source)	Application of FYM/Compost @ 20 tonnes /ha + 100% RDF (inorganic source)
T6	Application of FYM/Compost @20 tonnes/ha + in organic nutrient application based on soil test (rating chart)	Application of FYM/Compost @20 tonnes/ha + in organic nutrient application based on soil test (NPK application)	Application of FYM/Compost @20 tonnes/ha + in organic nutrient application based on soil test (NPK application)
T7	Application of FYM/Compost @10 tonnes/ha + biofertilizer (*Azotobactor/Acetobacter + PSB)* + 50% RDF	Application of FYM/Compost @10 tonnes/ha + biofertilizer (*Azotobactor/Acetobacter + PSB)* + 50% RDF	Application of FYM/Compost @10 tonnes/ha + biofertilizer (*Azotobactor/Acetobacter + PSB)* + 50% RDF
T8	Application of FYM / Compost @ 10 tonnes/ha + biofertilizer (*Azotobactor/Acetobacter + PSB)* + 100% RDF	Application of FYM / Compost @ 10 tonnes/ha + biofertilizer (*Azotobactor/Acetobacter + PSB)* + 100% RDF	Application of FYM / Compost @ 10 tonnes/ha + biofertilizer (*Azotobactor/Acetobacter + PSB)* + 100% RDF
T9	Application of FYM / Compost @ 10 tonnes/ha + biofertilizer (*Azotobactor/Acetobacter + PSB)* + soil test basis	Application of FYM / Compost @ 10 tonnes/ha + biofertilizer (*Azotobactor/Acetobacter + PSB)* + soil test basis (NPK application)	Application of FYM / Compost @ 10 tonnes/ha + biofertilizer (*Azotobactor/Acetobacter + PSB)* + soil test basis (NPK application)

10	a) No. of replication	3
	b) Plot size	12.0m X 6 m (10 rows of 1.2m)
	c) Date of Ratooning	18-12-2015
	d) Plot No.	4
	e) Date of harvesting	03.01.2017

AS 68 : Integrated nutrient management

Growth Parameters (Table-1): Pooled data indicates significant differences among the treatments in growth parameters except number of internodes. Significantly the higher cane height was recorded in T9 (2.27 m) and was on par with all the other treatments except T1 and T3 (2.05 m) which recorded lower cane height.

Number of tillers per row were significantly higher in T9 (74.80) and was on par with T5, T7 and T8. The lower number of tillers per row was recorded in T2 (64.92).

Yield and Yield attributes (Table-2).:The pooled data revealed non significant differences among the treatments in yield and yield attributing parameters except single cane weight.

Significantly higher single cane weight was recorded in T8 (1.57 kg) and was on par with other treatments except T5 & T7 (1.45 kg) which recorded lower weight.

Quality parameters (Table-3) : Brix, Pol and CCS content recorded significant differences. Whereas, juice weight purity and CCS yield recorded non significant differences among the treatments. Significantly higher brix unit was recorded in T1 (21.11) and was on par with T2, T4 and T5. The lowest brix was recorded in T3 (19.61).

Significantly higher pol was recorded in T1 (18.54) and was on par with T9 (17.80). The lowest POL was recorded in T6 (16.88).

Conclusion: The treatment differences did not exist due to severe drought for the last 3 years. Hence, most of the parameters recorded in the experiment did not show any variation due to moisture stress.

Analysis report of soil samples

Sl.No	***pH (1:2.5)***	***EC (dS/m) (1:2.5)***	**Available nutrients (kg/ha)**			**OC (%)**
			N	**P2O5**	**K2O**	
Plot No. 9 T1	7.88	0.43	240.00	53.80	372.00	0.66
Plot No. 9 T2	8.03	0.44	220.00	50.70	348.00	0.63
Plot No. 9 T3	7.91	0.53	246.00	48.65	372.00	0.60
Plot No. 9 T4	7.89	0.50	240.00	54.85	396.00	0.57
Plot No. 9 T5	7.84	0.54	214.00	49.60	408.00	0.51
Plot No. 9 T6	7.90	0.47	233.00	45.50	384.00	0.54
Plot No. 9 T7	7.88	0.46	240.00	51.75	372.00	0.60
Plot No. 9 T8	7.82	0.39	245.00	48.65	408.00	0.54
Plot No. 9 T9	7.75	0.50	233.00	52.80	360.00	0.57

Table 1: Growth parameters influenced by Integrated Nutrient Management in sugarcane (SNK 07680)

Treatments	Tillers /Row at 120 days			No. of Internodes			Cane height (m)		
	2015-16	2016-17	Pooled	2015-16	2016-17	Pooled	2015-16	2016-17	Pooled
T1	66.77	61.67	65.20	16.22	19.60	17.17	2.02	2.08	2.05
T2	66.63	62.33	64.92	15.44	20.67	18.05	2.08	2.17	2.12
T3	67.57	60.67	65.45	17.22	20.11	18.67	2.03	2.13	2.08
T4	63.40	64.00	67.50	17.43	20.00	18.72	2.23	2.17	2.20
T5	63.30	64.00	68.40	17.11	19.77	18.44	2.11	2.23	2.17
T6	68.33	61.33	66.35	17.22	19.78	18.50	2.09	2.14	2.11
T7	64.23	68.67	71.40	15.33	19.44	17.39	1.99	2.19	2.09
T8	64.00	65.67	69.08	16.44	19.55	18.00	2.14	2.32	2.23
T9	63.50	73.33	74.80	16.44	20.33	18.39	2.17	2.37	2.27
MEAN	65.30	64.63	68.12	16.54	19.75	18.15	2.10	2.20	2.15
SEM	1.47	2.31	2.16	1.01	0.68	0.69	0.10	0.07	0.06
CV	3.90	6.19	5.48	10.54	6.00	6.59	8.64	5.43	4.93
CD 5%	4.41	6.92	6.46	NS	NS	NS	NS	0.21	0.18

Table 2a: Yield and yield parameters influenced by Integrated Nutrient Management in sugarcane (SNK 07680).

Treatments	Cane yield (t/ha)			NMC/plot		
	2015-16	2016-17	Pooled	2015-16	2016-17	Pooled
T1	91.30	37.96	64.63	55.83	82.97	69.40
T2	93.50	36.17	64.83	50.63	93.54	72.09
T3	86.99	41.57	64.28	50.53	103.00	76.77
T4	95.65	38.01	66.83	52.77	93.07	72.92
T5	95.37	38.89	67.13	57.07	96.09	76.58
T6	101.81	41.36	71.58	50.27	98.68	74.47
T7	84.44	38.07	61.26	50.10	92.97	71.53
T8	92.08	31.57	61.83	55.10	80.54	63.82
T9	96.67	33.67	65.17	53.33	81.63	67.48
MEAN	93.09	37.48	65.28	52.85	90.50	71.67
SEM	8.46	3.76	4.09	1.20	8.59	4.19
CV	15.74	17.38	10.86	3.94	16.44	10.13
CD 5%	NS	NS	NS	3.60	NS	NS

Table 2b: Yield and yield parameters influenced by Integrated Nutrient Management in sugarcane (SNK 07680).

Treatments	Girth of cane (cm)			Single cane weight (kg)		
	2015-16	2016-17	Pooled	2015-16	2016-17	Pooled
T1	2.94	2.98	2.96	1.33	1.65	1.49
T2	3.14	3.08	3.11	1.60	1.39	1.49
T3	3.13	3.06	3.09	1.54	1.46	1.50
T4	3.04	3.02	3.03	1.49	1.47	1.48
T5	2.84	3.06	2.85	1.44	1.47	1.46
T6	2.98	2.98	2.98	1.50	1.52	1.51
T7	2.96	3.10	3.03	1.42	1.47	1.45
T8	2.95	3.07	3.01	1.59	1.56	1.57
T9	3.09	3.02	3.05	1.60	1.49	1.54
MEAN	2.98	3.04	3.01	1.50	1.50	1.50
SEM	0.11	0.07	0.06	0.05	0.06	0.03
CV	6.19	3.93	3.36	5.24	6.72	3.76
CD 5%	NS	NS	NS	0.14	0.17	0.10

Table 3a: Quality parameters influenced by Integrated Nutrient Management in sugarcane (SNK 07680).

Treatments	Juice weight (kg)			Corrected Brix			Corrected pol		
	2015-16	**2016-17**	**Pooled**	**2015-16**	**2016-17**	**Pooled**	**2015-16**	**2016-17**	**Pooled**
T1	0.66	0.87	0.77	21.11	21.11	21.11	18.54	18.54	18.54
T2	0.83	0.76	0.78	20.78	20.78	20.78	17.71	17.71	17.71
T3	0.79	0.78	0.78	19.61	19.61	19.61	17.00	17.00	17.00
T4	0.76	0.77	0.76	20.44	20.94	20.69	17.58	17.87	17.73
T5	0.74	0.77	0.77	20.78	20.61	20.69	17.79	17.50	17.65
T6	0.79	0.78	0.78	20.11	20.11	20.11	17.04	16.72	16.88
T7	0.75	0.78	0.77	20.28	20.28	20.28	17.02	17.26	17.14
T8	0.83	0.81	0.82	20.28	20.11	20.19	16.94	16.70	16.82
T9	0.85	0.80	0.83	20.28	20.11	20.19	17.88	17.72	17.80
MEAN	0.78	0.78	0.78	20.41	20.41	20.41	17.50	17.45	17.47
SEM	0.03	0.04	0.02	0.29	0.28	0.26	0.31	0.27	0.27
CV	6.51	8.13	4.86	2.43	2.34	2.24	3.04	2.68	2.65
CD 5%	0.09	NS	NS	0.86	0.83	0.79	0.92	0.81	0.80

Table 3b: Quality parameters influenced by Integrated Nutrient Management in sugarcane (SNK 07680).

Treatments	Purity %			Ccs %			Ccs yield (t/ha)		
	2015-16	2016-17	Pooled	2015-16	2016-17	Pooled	2015-16	2016-17	Pooled
T1	87.86	87.86	87.86	12.78	12.78	12.78	11.61	4.88	8.25
T2	85.27	85.27	85.27	12.04	12.04	12.04	11.25	4.35	7.80
T3	86.67	86.67	86.67	11.64	11.64	11.64	10.12	4.87	7.49
T4	86.01	85.33	85.67	12.00	12.15	12.07	11.45	4.59	8.04
T5	85.62	84.91	85.26	12.12	11.87	11.99	11.54	4.62	8.05
T6	84.71	84.16	83.94	11.54	11.22	11.38	11.73	4.64	8.14
T7	83.95	85.12	84.53	11.47	11.72	11.60	9.69	4.46	7.11
T8	83.80	83.93	84.00	11.39	11.19	11.29	10.50	3.55	6.98
T9	88.19	88.14	88.16	12.35	12.24	12.30	11.94	4.15	8.03
MEAN	85.75	85.50	85.63	11.93	11.87	11.90	11.09	4.45	7.76
SEM	1.47	1.42	1.39	0.29	0.26	0.25	1.07	0.45	0.53
CV	2.96	2.88	2.81	4.14	3.76	3.70	16.69	17.38	11.86
CD 5%	NS	NS	NS	0.86	0.77	0.76	NS	NS	NS

YEARLY RESEARCH WORK PLAN FOR THE YEAR 2016-2017

1	**Project No.**	**AICRP (AS 69)**
2	**Department**	**Sugarcane Agronomy**
3	**Project title**	**Use of plant growth regulators (PGRs) for enhanced yield and quality of sugarcane**
4	**Objectives**	**1. To accelerate rate and extent of sugarcane germination through the use of PGRs.** **2. To assess the effect of PGRs on sugarcane growth, yield and juice quality.**
5	**Project leader Associate**	**Dr. B.T. Nadagouda, Agronomist, AICRP (S)**
6	**New/continued**	**Plant Cane II**
7	**Year of start**	**2015-16**
8	**design**	**RBD**
9	**Treatment details**	

Treatments (8)	**Sugarcane (Plant crop)**
T1	Conventional Planting / Farmers practice (3 bud setts)
T2	Planting of setts after over nights soaking in water
T3	Planting of setts after over nights soaking in 50 ppm ethrel solution
T4	Planting of setts after over nights soaking in 100 ppm ethrel solution
T5	T1 + GA_3 spray (35 ppm) at 90, 120 and 150 DAP
T6	T2 + GA_3 spray (35 ppm) at 90, 120 and 150 DAP
T7	T3 + GA_3 spray (35 ppm) at 90, 120 and 150 DAP
T8	T4 + GA_3 spray (35 ppm) at 90, 120 and 150 DAP

10	**a) No. of replication**	**2**
	b) Plot size	**10.8m X 6.0m (8 rows of 1.35 m)**
	c) Date of planting	**14-02-2016**
	d) Plot No.	**3**
	e) Variety	**SNK 632**
	f) Date of harvesting	**13.01.2017**

AS 69: Use of plant growth regulators (PGRs) for enhanced yield and quality of sugarcane

Growth parameters (Table-1)

Among the growth parameters recorded the pooled data of 2015-16 and 2016-17 indicated that none of them recorded significant differences among the treatments except the germination count and number of tillers. Significantly the higher germination count and tiller number was recorded in T3-(Planting of setts after overnight soaking in 50 ppm ethrel solution). The lowest germination count was recorded in T5 (Conventional planting of three budded setts and GA_3 spray (35 ppm) at 90, 120 and 150 DAP).

The insignificance of growth parameters for treatment variation was mainly attributed to severe drought prevailed during both the years.

Yield and Yield attributes (Table-2)

Among the yield attributes only the number of millable canes (NMC) was significant for both the years T3 -(Planting of setts after overnight soaking in 50 ppm ethrel solution) recorded the higher NMC and lower NMC was recorded in T7 (T3 + GA_3 (35 ppm) spray at 90, 120 and 150 DAP)

However all other yield parameters were found on par among the treatments though marginally the higher cane yield was recorded in T3 -(Planting of setts after overnight soaking in 50 ppm ethrel solution)

Quality parameters (Table-3)

The quality parameters did not vary significantly among the treatments except juice purity.

Significantly the higher juice purity was recorded in T8 (T4 + GA_3 (35 ppm) spray at 90, 120 and 150 DAP) and was on par with T3, T4, T5 and T6.

The lowest juice purity was recorded in T1 (conventional planting of 3 budded setts).

Conclusion: The treatment variation for use of growth regulators is not conspicuous due to occurrence of drought during both years. However, T3 (Planting of setts after overnight soaking in 50 ppm ethrel solution) recorded few of the growth (germination and tiller number). Yield (NMC) and quality parameters (juice purity) significantly higher values and remaining all other parameters were found on par.

Table 1a: Use of plant growth regulators on Growth parameters in sugarcane (SNK 632)

Treatments	Germination (%) at 30 days			No. Of tillers/ Plot (120 Days)		
	2015-16	2016-17	Pooled	2015-16	2016-17	Pooled
T1	61.11	40.31	51.06	48.72	84.44	67.34
T2	68.21	38.38	53.68	55.33	88.06	71.91
T3	86.57	39.13	65.40	59.39	86.63	73.81
T4	66.36	37.88	53.31	51.72	83.19	67.18
T5	52.16	34.50	45.14	52.67	78.56	65.66
T6	69.29	32.94	50.03	55.72	76.38	66.31
T7	72.22	34.75	55.69	54.50	80.38	68.06
T8	76.08	34.94	57.52	57.17	78.06	67.99
MEAN	69.00	36.60	53.98	54.40	81.96	68.53
SEM	3.26	2.28	2.09	1.72	2.56	0.66
CV (%)	8.17	8.79	5.49	5.48	4.41	1.37
CD 5%	9.87	NS	7.00	5.22	8.55	2.22

Table 1b Use of plant growth regulators on Growth parameters in sugarcane (SNK 632)

Treatments	Cane height (m)			No. of Internodes		
	2015-16	2016-17	Pooled	2015-16	2016-17	Pooled
T1	2.51	1.65	2.08	24.87	15.83	20.24
T2	2.27	1.71	2.02	22.63	16.33	19.74
T3	2.29	1.76	2.01	22.53	17.16	19.73
T4	2.28	1.62	1.95	23.50	15.33	19.47
T5	2.28	1.75	2.02	22.67	16.50	20.00
T6	2.32	1.71	1.98	23.43	16.33	19.99
T7	2.41	1.71	1.98	22.97	16.00	19.40
T8	2.25	1.73	1.95	23.00	16.50	19.25
MEAN	2.32	1.70	2.00	23.20	16.25	19.73
SEM	0.08	0.05	0.04	0.79	0.83	0.61
CV (%)	5.66	3.84	2.73	5.90	7.25	4.35
CD 5%	NS	NS	NS	NS	NS	NS

Table 2a: Use of plant growth regulators Yield and Yield attributes in sugarcane (SNK 632)

Treatments	Cane yield (t/ha)			NMC/Row		
	2015-16	2016-17	Pooled	2015-16	2016-17	Pooled
T1	94.21	46.99	70.92	41.06	40.00	41.13
T2	96.76	45.20	71.21	46.28	39.13	42.40
T3	99.54	45.20	72.94	47.67	40.81	44.86
T4	89.74	43.40	69.33	42.06	38.81	41.74
T5	89.35	43.61	66.25	42.11	38.31	40.99
T6	93.60	42.30	67.26	42.56	36.69	39.47
T7	95.45	42.57	71.00	39.39	37.38	39.23
T8	87.56	44.57	64.71	43.17	37.63	41.19
MEAN	92.53	43.94	69.20	43.03	38.59	41.38
SEM	4.14	1.67	3.65	1.90	0.96	1.48
CV	7.75	5.38	7.45	7.66	3.53	5.06
CD 5%	NS	NS	NS	5.77	3.23	4.95

Table 2a: Use of plant growth regulators Yield and Yield attributes in sugarcane (SNK 632)

Treatments	Single Cane weight (kg)			Girth of cane (cm)		
	2015-16	2016-17	Pooled	2015-16	2016-17	Pooled
T1	2.32	1.51	1.94	3.48	1.65	3.47
T2	2.22	1.49	1.89	3.65	1.71	3.56
T3	2.36	1.44	1.84	3.65	1.76	3.46
T4	2.26	1.31	1.81	3.59	1.62	3.45
T5	2.22	1.40	1.82	3.42	1.75	3.40
T6	2.25	1.36	1.85	3.50	1.71	3.46
T7	2.22	1.32	1.79	3.45	1.71	3.35
T8	2.17	1.52	1.85	3.46	1.73	3.50
MEAN	2.25	1.41	1.85	3.52	1.70	3.46
SEM	0.11	0.06	0.09	0.11	0.05	0.09
CV	8.69	6.21	7.06	5.26	3.84	3.58
CD 5%	NS	NS	NS	NS	NS	NS

Table 3a: Use of plant growth regulators on quality parameters in sugarcane (SNK 632)

Treatments	Juice weight (kg)			Brix % 12M			Sucrose %		
	2015-16	2016-17	Pooled	2015-16	2016-17	Pooled	2015-16	2016-17	Pooled
T1	1.27	0.90	1.09	22.61	20.76	21.81	20.03	17.81	18.79
T2	1.25	0.89	1.10	22.44	20.26	21.44	20.03	17.37	18.63
T3	1.33	0.87	1.07	22.61	20.26	21.44	19.90	17.61	18.69
T4	1.26	0.80	1.05	22.44	20.76	21.69	19.95	17.94	18.92
T5	1.22	0.84	1.04	22.61	20.26	21.44	20.25	17.25	18.75
T6	1.24	0.82	1.08	22.78	19.51	21.31	20.16	17.04	18.63
T7	1.21	0.85	1.01	22.78	19.76	21.44	20.08	17.28	18.63
T8	1.17	0.91	1.06	22.44	20.01	21.31	20.11	17.75	18.94
MEAN	1.24	0.85	1.06	22.59	20.20	21.48	20.01	17.51	18.75
SEM	0.07	0.04	0.06	0.19	0.55	0.32	0.13	0.43	0.23
CV	9.84	6.15	7.64	1.42	3.83	2.08	1.12	3.48	1.74
CD 5%	NS	NS	NS	NS	NS	NS	NS	NS	NS

Table 3a: Use of plant growth regulators on quality parameters in sugarcane (SNK 632)

Treatments	Purity %			CCS %			CCS Yield (t/ha)		
	2015-16	2016-17	Pooled	2015-16	2016-17	Pooled	2015-16	2016-17	Pooled
T1	86.79	85.79	86.12	13.69	12.14	12.83	12.67	5.71	9.27
T2	89.27	85.72	86.86	13.92	11.84	12.78	13.47	5.35	9.35
T3	87.81	86.91	87.19	13.69	12.08	12.84	13.62	5.46	9.58
T4	88.91	86.41	87.21	13.84	12.27	13.00	12.41	5.32	9.20
T5	89.61	85.14	87.38	14.10	11.71	12.91	12.60	5.11	8.83
T6	88.54	87.36	87.41	13.95	11.72	12.81	13.06	4.69	8.92
T7	88.21	87.47	86.94	13.87	11.89	12.78	13.22	5.06	9.32
T8	89.60	88.71	88.87	14.00	12.30	13.13	12.42	5.48	8.67
MEAN	88.59	86.69	87.25	13.85	11.99	12.89	12.81	5.27	9.14
SEM	0.80	0.69	0.56	0.13	0.29	0.16	0.61	0.27	0.54
CV	1.56	1.12	0.91	1.61	3.43	1.73	8.29	7.13	8.39
CD 5%	2.42	2.30	1.88	NS	NS	NS	NS	NS	NS

YEARLY RESEARCH WORK PLAN FOR THE YEAR 2016–17

1	**Project No.**	**AS-72a – (AIRCRP), Early**			
2	**Department**	**Sugarcane Agronomy**			
3	**Project Title**	**Agronomic performance of elite sugarcane genotypes – (January)**			
4	**Objectives**	**To assess the performance of promising sugarcane genotypes of Advanced Varietal Trial (AVT)**			
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**	**New, AVT (PC)**			
7	**Year Of Start**	**2016-17 (With Change of Genotypes)**			
8	**Design**	**RBD**			
9	**Treatments**				
		V_1	**Co 10004**	**V_7**	**CoT 10366**
		V_2	**Co 10005**	**V_8**	**CoT 10367**
		V_3	**Co 10006**	**V_9**	**Co 85004 (C)**
		V_4	**Co 10024**	**V_{10}**	**Co 94008 (C)**
		V_5	**Co 10026**	**V_{11}**	**CoC 671 (C)**
		V_6	**Co 10027**		
10	**A) No. of Replications** **B) Plot Size** **C) DOP** **D) DOH.**	**3** **6 M X 6 M (4 Rows of 1.5m)** **01.02.2016** **03.01.2017**			

Growth parameters: (Table 1)

All the sugarcane varieties tested were found significant among them for germination number of tillers per plot, cane height and number of internodes per cane.

Significantly higher germination count was recorded in V7-CoT 10366 (28.58) and lowest count was recorded in V11 –CoC 671 (15.67).

Significantly higher tiller number was recorded in V9 Co 85004 (73.25) and was on par with V5 Co 10026 (64.58). The lowest tiller count was recorded in V3 Co 10006 (39.08).

The cane height was significantly higher in V5 Co 10026 (2.6 m) and lowest was recorded in V3 Co 10006 (1.77m)

Number of internode was significantly higher in V8 CoT 10367 (23.33) and was on par with all other varieties except V2 Co 10005, V3 Co 10006, and V6 Co 10027. The lowest number of was recorded in V4 Co 10024.

Yield and yield attributing parameters: (Table 2)

The yield and yield attributing parameters found significant for the varieties tested. Significantly the higher cane yield was recorded in V10 Co 94008 (68.20 t/ha) and was on par with V9 Co 85004 (64.96 t/ha). The lowest cane yield was recorded in V11 CoC 671 (49.95 t/ha).

Number of millable canes were significantly higher in V9 Co 85004 (60.50) and was on par with V7 CoT 10366 (58.17) and V1 Co 10004 (57.67). Lowest number of millable canes were recorded in V2 Co 10005 (43.43).

Cane girth was significantly higher in V10 Co 94008 (3.16cm) and was on par with V6 Co 10027 (2.87), V7 CoT 10366 (3.09), V8 CoT 10367 (3.02) and V1 CoC 671 (2.91). The lowest cane girth was recorded in V2 Co 10005 (2.63 cm).

Single cane weight was significantly higher in V8 CoT 10367 (1.83 kg) and was on par with V5 Co 10026 (1.78), V10- Co 94008 (1.70) and CoC 671 (1.58). The lowest single cane weight was recorded in V3 Co 10006 (1.07 kg).

Quality parameters (Table 3)

All the quality parameters were found significant for the varieties tested for their agronomic evaluation.

Significantly higher juice weight was recorded in V5 Co 10026 (1.07 kg) and was on par with V1 Co 10004 (0.86), V8 CoT 10367 (0.99), V10 Co 94008 (0.98) and V11 CoC 671 (0.88). The lowest juice weight was recorded in V3 Co 10006 (0.62 kg).

Significantly higer brix value was recorded in V2 Co 10005 (24.10) and was on par with V1 Co 10004 (21.92), V5 Co 10026 (22.09), V8 CoT 10367 (23.43) and V9 Co 85004 (23.76). The lowest brix value was recorded in V10 Co 94008 (19.11).

The POL was significantly higher in V2 Co 10005 (22.02) and was on par with V1 Co 10004 (20.20), V3-Co 10006 (19.37), V5 Co 10026 (20.36), V8 CoT 10367 (21.71), V9 Co 85004 (21.83) and V11 CoC 671 (19.92). The lowest POL was recorded in V7 CoT 10366 (17.4).

Juice purity was significantly higher in V10 Co 94008 (96.52) and was on par with other varieties except Co 10027 and CoT 10366. The lowest juice purity was recorded in V4 Co 10024 (85.81).

The higher CCS percent was recorded in V2 Co 10005 (15.47) and the lowest was recorded in V7 CoT 10366 (11.97). CCS yield was significantly higher in V9 Co 85004 (9.99 t/ha) and was on par with V2 Co 10005 (8.84), V8 CoT 10367 (8.67) and T10 Co 94008 (9.11). The lowest CCS yield was recorded in V4 Co 10024 (6.71 t/ha).

Conclusion: Among the varieties tested for their agronomic evaluation with 125%RDF V8 CoT 10367 and V10 Co 94008 are superior in number of internodes, single cane weight, Cane girth and all the quality parameters tested. The poor performance was seen in V4 Co 10024 for most of its growth, yield and quality parameters. However due to higher NMC the cane yield was higher in V9 Co 85004.

Initial composite soil sample properties of the site

Chemical properties

Sl.No	***pH (1:2.5)***	***EC (dS/m) (1:2.5)***	**Available nutrients (kg/ha)**			**OC (%)**
			N	**P2O5**	**K2O**	
Early						
1	7.88	0.43	240.00	53.80	372.00	0.66
Midlate						
2	7.82	0.39	245.00	48.65	408.00	0.54

Physical properties

Sl No	**Particulars**	**Sand (%)**	**Fibre (%)**	**Silt (%)**	**Clay (%)**
1	Early varieties	7.00	8.20	26.30	58.50
2	Midlate varieties	7.30	8.50	26.00	58.20

Table 1: Growth parameters

Varieties	Germination count at 30 days/row	Tillers/ row at 120 Days	No. of Internodes	Cane height (m)
V1-Co 10004	21.33	42.58	21.89	2.23
V2-Co 10005	16.17	48.92	20.11	2.25
V3-Co 10006	16.42	39.08	19.33	1.77
V4-Co 10024	19.58	48.83	19.08	2.25
V5-Co 10026	22.25	64.58	21.44	2.60
V6-Co 10027	25.25	52.92	19.55	1.87
V7-CoT 10366	18.25	55.50	22.22	1.95
V8-CoT 10367	28.58	52.25	23.33	2.23
V9-Co 85004 ©	25.00	73.25	22.89	2.21
V10-Co 94008 ©	18.42	48.67	21.89	2.19
V11-CoC 671 ©	15.67	41.08	21.55	2.28
MEAN	20.63	51.61	21.21	2.17
SEM ±	1.09	4.76	0.95	0.07
CV (%)	9.18	15.98	7.80	5.83
CD (5%)	3.23	14.04	2.82	0.21

Table 2: Yield and Yield attributes

Varieties	Cane yield (t/ha)	NMC/Row	Single Cane weight (kg)	cane girth (cm)
V1-Co 10004	57.82	57.67	1.45	2.83
V2-Co 10005	57.18	43.42	1.23	2.63
V3-Co 10006	60.60	44.00	1.07	2.72
V4-Co 10024	55.23	51.67	1.35	2.84
V5-Co 10026	58.10	44.92	1.78	2.86
V6-Co 10027	57.73	49.17	1.32	2.87
V7-CoT 10366	56.34	58.17	1.54	3.09
V8-CoT 10367	56.53	52.00	1.83	3.02
V9-Co 85004 ©	64.96	60.50	1.18	2.70
V10-Co 94008 ©	68.20	51.58	1.70	3.16
V11-CoC 671 ©	49.95	49.08	1.58	2.91
MEAN	58.42	51.11	1.46	2.88
SEM ±	1.93	1.67	0.09	0.10
CV (%)	5.73	5.67	10.57	5.90
CD (5%)	5.70	4.94	0.26	0.29

Table 3: Yield and quality parameters

Varieties	Juice weight (kg)	Brix (%) 12M	Sucrose (%)	Purity (%)	CCS (%)	CCS Yield (t/ha)
V1-Co 10004	0.86	21.92	20.20	92.16	14.25	8.24
V2-Co 10005	0.65	24.10	22.02	91.39	15.47	8.84
V3-Co 10006	0.62	21.25	19.37	91.03	13.59	8.24
V4-Co 10024	0.75	20.75	17.81	85.81	12.14	6.71
V5-Co 10026	1.07	22.09	20.36	92.18	14.36	8.36
V6-Co 10027	0.73	19.82	17.44	87.34	12.04	6.93
V7-CoT 10366	0.75	19.92	17.40	87.37	11.97	6.73
V8-CoT 10367	0.99	23.43	21.71	92.67	15.34	8.67
V9-Co 85004 ©	0.62	23.76	21.83	91.88	15.37	9.99
V10-Co 94008 ©	0.98	19.11	18.50	96.52	13.33	9.11
V11-CoC 671 ©	0.88	20.65	19.92	96.16	14.33	7.11
MEAN	0.81	21.53	19.69	91.32	13.84	8.08
SEM ±	0.08	0.75	0.94	2.01	0.76	0.48
CV (%)	17.00	6.03	8.27	3.81	9.54	10.31
CD (5%)	0.23	2.21	2.77	5.93	2.25	1.42

YEARLY RESEARCH WORK PLAN FOR THE YEAR 2016–17

1	**Project No.**	**AS-72b – (AIRCRP), Midlate**			
2	**Department**	**Sugarcane Agronomy**			
3	**Project Title**	**Agronomic performance of elite sugarcane genotypes – (January)**			
4	**Objectives**	**To assess the performance of promising sugarcane genotypes of Advanced Varietal Trial (AVT)**			
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**	**New, AVT (PC)**			
7	**Year Of Start**	**2016-17 (With Change of Genotypes)**			
8	**Design**	**RBD**			
9	**Treatments**				
		V_1	**Co 09009**	**V_8**	**CoT 10369**
		V_2	**Co 10015**	**V_9**	**CoVC 10061**
		V_3	**Co 10017**	**V_{10}**	**PI 10131**
		V_4	**Co 10031**	**V_{11}**	**PI 10132**
		V_5	**Co 10033**	**V_{12}**	**Co 86032 ©**
		V_6	**CoM 10083**	**V_{13}**	**Co 99004 ©**
		V_7	**CoT 10368**		
10	**A) No. of Replications** **B) Plot Size** **C) DOP** **D) DOH.**	**3** **6 M X 6 M (4 Rows of 1.5m)** **01.02.2016** **03.01.2017**			

Growth Parameters (Table 1)

The germination was significantly higher in T4 Co 10031 (24.33) and was on par with Co 09009 (21.25, Co 10017 (21.42), Co 10033 (21.17) CoT 10369 (21.75), PI 10131 (20.75) and Co 86032 (22.33). The lowest germination was recorded in Co 10015 (8.33).

The number of tillers were significantly higher in CoVc 10061 (70.50) and was on par with Co 10017 (67.17), Co 10031 (63.25) and CoT 10369 (70.08). The lowest tillers were found in Co 10015 (18.50).

The number of internodes formed per cane did not vary significantly and were on par with each other.

Cane height was significant among the varieties tested and was highest in Co 99004 (2.48m) and lowest cane height was recorded in Co 09009 (1.86m)

Yield and yield attributes (Table 2)

The yield parameters tested for varieties under test, the cane girth was non significant and was on par.

Significantly higher cane yield was recorded in Co 86032 (61.53) and all other varieties were on par except CoT 10369 and Co 99004 (49.11) which recorded lowest cane yield.

Significantly higher number of millable canes (NMC) was recorded in PI 10131 (62.50) and was on par with Co 09009 (56.75), Co 10033 (56.58), CoM 10083 (57.08), PI 10132 (55.08) and Co 86032 (56.58). The lowest NMC was recorded in Co 10031 (48.42).

Single cane weight was significantly higher in PI 10132 (2.07 kg) and was on par with Co 86032 (1.79) and Co 99004 (1.81). The lowest single cane weight was recorded in CoT 10368 (1.03).

Quality parameters (Table 3)

The quality parameters were significant for the varieties tested except purity.

The juice weight was significantly superior in PI 10132 (1.15 kg) and lowest juice weight was recorded in CoT 10368 (0.55 kg).

Sucrose percent was significantly higher in CoT 10369 (20.23) and was on par with all other varieties except Co 99004 (17.84) and CoT 10368 (17.16) which recorded lower sucrose percent.

Higher brix unit was recorded in CoT 10369 (22.59) and lowest was recorded in CoT 10368 (19.42).

The CCS yield was significantly higher in PI 10131 (8.44 t/ha) and was on par with all other varieties except Co 99004 (6.03 t/ha) which recorded lowest CCS yield.

Conclusion: PI 10132 and Co 86032 performed better among the varieties tested for agronomic performance for most of the growth, yield and quality parameters.

Table 1: Growth parameters

Varieties	Germination count at 30 days	Tillers/ Row at 120 Days	No. of Internodes	Cane height (m)
V1-Co 09009	21.25	53.67	20.33	1.86
V2-Co 10015	8.33	18.50	20.22	1.93
V3-Co 10017	21.42	67.17	21.67	2.30
V4-Co 10031	24.33	63.25	19.94	2.02
V5-Co 10033	21.17	53.50	20.55	2.46
V6-CoM 10083	16.75	46.83	23.00	2.01
V7-CoT 10368	17.08	53.00	20.11	2.16
V8-CoT 10369	21.75	70.08	20.78	2.06
V9-CoVC 10061	17.33	70.50	20.11	2.06
V10-PI 10131	20.75	57.50	22.11	2.28
V11-PI 10132	15.75	40.17	20.89	2.47
V12-Co 86032 ©	22.33	56.83	22.11	2.22
V13-Co 99004 ©	10.92	38.25	21.66	2.48
MEAN	18.40	53.02	21.03	2.18
SEM ±	1.23	3.55	1.06	0.14
CV (%)	11.57	11.59	8.75	11.12
CD 5%	3.59	10.36	NS	0.41

Table 2: Yield and Yield attributes

Varieties	Cane yield (t/ha)	NMC/Row	Single Cane weight (kg)	Cane girth (cm)
V1-Co 09009	56.34	56.75	1.29	2.89
V2-Co 10015	59.03	52.17	1.30	3.07
V3-Co 10017	59.77	53.17	1.69	2.97
V4-Co 10031	61.35	48.42	1.40	2.88
V5-Co 10033	59.49	56.58	1.61	2.86
V6-CoM 10083	57.55	57.08	1.22	2.72
V7-CoT 10368	59.03	53.00	1.03	2.70
V8-CoT 10369	54.95	54.08	1.39	2.86
V9-CoVC 10061	58.84	48.83	1.31	2.74
V10-PI 10131	59.86	62.50	1.60	2.72
V11-PI 10132	57.18	55.08	2.07	2.83
V12-Co 86032 ©	61.53	56.58	1.79	2.84
V13-Co 99004 ©	49.11	49.50	1.81	3.01
MEAN	58.00	54.13	1.50	2.85
SEM ±	2.17	2.60	0.03	0.13
CV (%)	6.47	8.32	3.39	7.70
CD 5%	6.33	7.59	0.09	NS

Table 3: Quality parameters

Varieties	Juice weight (kg)	Brix (%) 12M	Sucrose (%)	Purity (%)	CCS (%)	CCS Yield (t/ha)
V1-Co 09009	0.80	21.42	19.52	91.20	13.69	7.77
V2-Co 10015	0.71	21.92	19.60	89.72	13.63	8.08
V3-Co 10017	0.93	22.59	19.99	88.42	13.83	8.30
V4-Co 10031	0.81	21.42	19.52	91.11	13.70	8.42
V5-Co 10033	0.85	20.92	18.76	89.60	13.06	7.82
V6-CoM 10083	0.70	21.59	19.34	89.58	13.46	7.75
V7-CoT 10368	0.55	19.42	17.16	88.16	11.87	6.93
V8-CoT 10369	0.87	22.59	20.23	89.57	14.08	7.73
V9-CoVC 10061	0.61	22.25	19.87	89.30	13.81	8.14
V10-PI 10131	0.82	22.09	20.03	90.79	14.02	8.44
V11-PI 10132	1.15	20.92	18.99	90.74	13.30	7.59
V12-Co 86032 ©	1.00	20.92	18.41	88.02	12.70	7.80
V13-Co 99004 ©	0.97	20.25	17.84	88.00	12.32	6.03
MEAN	0.83	21.41	19.17	89.55	13.34	7.75
SEM ±	0.04	0.73	0.81	2.29	0.67	0.56
CV (%)	9.09	5.91	7.32	4.43	8.67	12.49
CD 5%	0.13	2.13	2.36	NS	1.95	1.63

Trials vitiated:

1) AS 70: Scheduling irrigation with mulch under different sugarcane planting methods
2) AS 71: Carbon sequestration assessment in sugarcane based cropping system

These trials were vitiated due to acute shortage of water and severe drought conditions prevailed in northern Karnataka since 2014.