ANNUAL REPORT

CROP PRODUCTION

(Year 2014-2015)

Expt. No. AS 42 /Sugarcane/Agronomy/Kota/2014-15/Spring -1

1	**Name of the Project**	:	AICRP on Sugarcane
2	**Location**	:	Agriculture Research Station, Kota
3	**Title of Experiment**	:	Agronomic Evaluation of Promising Sugarcane Genotypes
4	**Year of start**	:	2012-13 (with change of genotypes)
5	**Year of completion**		2014-15
6	**Brief description of the experiment**		
(i)	**Objective**	:	To work out agronomy of sugarcane varieties from advanced varietal trial (AVT)
(ii)	**Treatment**	:	
	1. Varieties	:	V_1 – Co-06033 V_2 – CoLK-07201 V_3 – CoS-06247 V_4 – CoPK-05191(C)
	2. Fertilizer levels	:	F_1 - 75% of the recommended dose of NPK (150:45:30) F_2 - 100% of the recommended dose of NPK (200:60:40) F_3 - 125% of the recommended dose of NPK (250:75:50)
(iii)	**Design**	:	Factorial, R. B. D. (3 x 3)
(iv)	**Replication**	:	3
(v)	**Plot size**	:	6 x 5.4 m^2
(vi)	**Weed Control**	:	Spray of Atrazine @ 2.0 kg a. i./ha as PE followed by one hand weeding at 60 DAP
(vii)	**Fertilizer**	:	Application of the recommended dose of N, P& K (200:60:40 Kg/ha.) as per treatment. 1/4 dose of N and full dose of P&K applied at the time of planting and remaining dose of N applied in 3 splits within in 120 DAP(Tillering, grand growth and first rain shower) .

(viii)	**Date of Planting**	:	**Ist year**	**IInd year**	**IIInd year**
			10.03.2012	14.3.2013	24.2.2014
(ix)	**Date of Harvesting**	:	15.02.2013	17.02.2014	9.3.2015

7. Physico-chemical properties of experimental soil :

The data in Table –AS 42.1 showed that soil of experimental trial was clay loam in texture, alkaline in reaction, (1.42 mg/m^3). The soil was medium in available phosphorus and high in available nitrogen and potassium during both the years.

Table: AS 42.1 Physico- chemical properties of the experimental field.

Parameters	Value
Textural class	Clay loam
Bulk density (mg/m^3)	1.45
Particle density (mg/m^3)	2.66
Porosity (%)	48.00
Soil pH (1:2.5)	8.15
Organic carbon (%)	0.54
available N (Kg/ha)	357.00
available $P_2 O_5$ (Kg/ha)	23.30
available K_2O (Kg/ha)	285.00

8. Results:

The experiments crop was planted in spring during 10.03.2012 to 24.2.2014 and harvested in 2013,2014, & 2015 in early summer.The experiment consisted of 4 genotypes viz; Co-06033, CoLK-07201, CoS-06247 and CoPK-05191(c) and three fertility levels viz; F_1 - 75% of the recommended dose of NPK (150:45:.50), 100% of the recommended dose of NPK (200:60:40) and 125% of the recommended dose of NPK (250:75:50).

During 2012-13 a perusal of data (AS 42.2) showed that among genotypes CoS-06247 recorded significantly higher tiller count than other genotypes. Cane length was higher than check variety CoPK-05191 and at par with CoLK-07201. Similarly CoS-06247 recorded the highest cane yield (81.21 t/ha) and millable canes and found significantly superior to variety CoLK-07201, whereas at par with CoPK-05191 and Co-06033. Sucrose content and CCS (%) showed significant difference among different genotypes being higher in CoPK-05191 followed by CoS-06247, CoLK-07201 and Co-06033 during 2012-2013.The fertility levels significantly influenced tiller count, millable cane and cane yield. However, the response was obtained up to 100% of recommended level of fertilizer. Cane quality remained unaffected under different fertility levels. Interaction between genotypes and fertility levels were found non significant during 2012-2013.

During 2013-14 a perusal of data (Table AS 42.3) revealed that among genotypes CoS-06247 recorded significantly higher tiller count, cane length, millable cane and cane yield over other genotypes and at par with Co-06033. Cane variety CoS-06247 recorded the highest cane yield (104.30 t/ha) and millable canes (131220.00 / ha) and found significantly superior to variety CoLK-07201 and check CoPK-05191, whereas at par with Co-06033. Among the genotypes CoPK-05191 recorded significant higher sugar yield (12.06 t / ha) over CoLK-07201 and on par with rest of the genotypes.

During 2014-15 a perusal of data (Table AS 42.4) revealed that among genotypes CoS-06247 produced significantly higher millable cane and cane yield over CoLK-07201 and at par with CoPK-05191 and Co-06033.Cane yield increased significantly upto 100% of the recommended dose of NPK fertilizer in different genotypes during three years. Same trends of treatments effect on cane yield attributes and quality parameters were also recorded during this year.

9. Summary: Among genotypes CoS-06247 produced significantly higher millable cane (1, 30,690/ha) and cane yield (107.24t/ha) over CoLK-07201 and at par with CoPK-05191 and Co-06033. However, CoPK-05191 also maintained its superiority over other genotypes in terms of cane quality. Cane yield (104.95t/ha) increased significantly upto 100% of the recommended dose of NPK fertilizer in different genotypes during 2014-15.

10. Significant findings: Among genotypes CoS-06247 produced significantly higher millable cane and cane yield over CoLK-07201 and at par with CoPK-05191 and Co-06033. However, CoPK-05191 also maintained its superiority over other genotypes in terms of cane quality. Cane yield increased significantly upto 100% of the recommended dose of NPK fertilizer in different genotypes during the three years.

11. Scientist attached: Dr. B.S. Meena

Table: AS 42.2: Effect of genotypes and fertility levels on yield attributes, yield and quality of the sugarcane during 2012-13 at Kota.

Treatment	Germination (%)	Tillers (000/ha)	Cane length (cm)	Millable cane (000ha)	Single cane weight (g)	Cane yield (t/ha)	Pol % in juice	CCS (%)	CCS yield (t/ha)
Varieties									
Co-06033	39.11	126.3	213.3	104.2	791	76.75	17.12	11.44	8.78
CoLK-07201	36.25	114.9	176.8	83.3	815	69.25	16.42	11.06	7.66
CoS-06247	39.66	151.0	207.2	105.4	816	81.11	16.30	10.87	8.82
CoPK-05191(c)	35.55	131.4	181.0	99.6	838	79.25	19.24	13.29	10.53
CD at 5%	NS	16.2	9.9	9.3	NS	8.6	0.71	0.60	1.86
Fertility levels									
75 % RDF	35.85	120.0	193.6	88.4	827	70.27	17.07	11.49	8.07
100 %RDF	38.22	130.6	192.8	100.5	839	78.92	17.31	11.70	9.23
125% RDF	38.80	142.0	197.4	105.4	824	80.63	17.43	11.80	9.51
CD at 5%	NS	14.1	NS	8.0	NS	7.40	NS	NS	NS

Table: AS 42. 3: Effect of genotypes and fertility levels on yield attributes, yield and quality of the sugarcane during 2013-14 at Kota.

Treatment	Germination (%)	Tillers (000/ha)	Cane length (cm)	Millable cane (000/ha)	Single cane weight (g)	Cane yield (t/ha)	Pol % in juice	CCS (%)	CCS yield (t/ha)
Varieties									
Co-06033	45.44	140.58	217.89	127.78	800.00	94.16	17.87	12.30	11.58
CoLK-07201	42.70	131.88	201.79	116.89	817.00	88.82	17.46	12.00	10.65
CoS-06247	47.57	150.81	225.78	131.22	820.00	104.30	16.74	11.47	11.97
CoPK-05191(c)	42.98	142.46	211.56	125.56	835.00	95.70	18.28	12.60	12.06
SEm ±	0.76	2.40	3.09	1.69	11.96	2.27	0.24	0.15	0.20
CD(P=0.05)	2.20	6.93	8.93	4.87	NS	6.55	0.68	0.43	0.58
CV	8.34	8.31	7.07	6.60	7.12	7.75	6.58	6.04	8.55
Fertility levels									
75 % RDF	43.89	130.93	207.08	117.42	810.20	87.90	17.21	11.70	10.68
100 %RDF	44.54	143.14	214.84	128.17	819.50	98.47	17.60	12.10	11.74
125% RDF	45.58	150.22	220.83	130.50	824.30	100.88	17.94	12.40	12.26
SEm ±	1.52	4.80	6.18	3.38	12.26	3.03	0.47	0.30	0.40
CD(P=0.05)	NS	13.85	NS	9.75	NS	8.75	NS	NS	1.17
CV	8.34	8.31	7.07	6.60	7.12	7.75	6.58	6.04	8.55

Table: AS 42.4: Effect of genotypes and fertility levels on yield attributes, yield and quality of the sugarcane during 2014-15 at Kota.

Treatment	Germination (%)	Tillers (000/ha)	Cane length (cm)	Millable cane (000/ ha)	Single cane weight (g)	Cane yield (t/ha)	Brix (%)	Pol % in juice	CCS (%)	CCS yield (t/ha)
Varieties										
Co-06033	45.60	144.13	220.29	129.24	817.53	102.04	19.14	16.57	11.35	11.60
CoLK-07201	43.34	130.66	206.90	115.61	815.33	92.13	18.96	16.38	11.20	10.33
CoS-06247	48.00	154.19	228.22	130.69	822.11	107.24	20.51	17.98	12.39	13.28
CoPK-05191(c)	43.30	144.32	217.33	125.28	814.13	93.86	20.84	18.32	12.64	11.89
SEm	0.74	2.05	2.91	1.84	11.96	2.27	0.14	0.15	0.11	0.22
CD (P=0.05)	2.14	5.93	8.41	5.31	NS	6.55	0.41	0.42	0.31	0.64
CV	8.05	7.02	6.54	7.197	7.20	7.33	3.51	4.16	4.47	9.26
Fertility levels										
75 % RDF	44.43	134.18	211.18	117.14	813.15	90.33	19.60	17.04	11.69	10.56
100% RDF	44.83	146.71	220.35	128.38	819.08	101.18	19.65	17.09	11.73	11.86
125 %RDF	45.93	149.09	223.03	130.09	819.60	104.95	20.34	17.81	12.26	12.91
SEm ±	1.48	4.11	5.83	3.68	12.27	2.96	0.28	0.29	0.22	0.45
CD (P=0.05)	NS	11.86	NS	10.62	NS	8.54	NS	NS	NS	1.29
CV	8.05	7.02	6.54	7.20	7.20	7.33	3.51	4.16	4.47	9.26

Expt. No. AS 64 /Sugarcane/Agronomy/Kota/2014-15/Spring -2

1	**Name of the Project**	:	AICRP on Sugarcane
2	**Location**	:	Agriculture Research Station, Kota
3	**Title of Experiment**	:	Response of sugarcane crop to different plant nutrients in varied agro ecological situations.
4	**Year of start**	:	Spring 2011-12
5	**Year of completion**	:	2014-15

6 **Brief description of the experiment**

(i) **Objective** : To study differential response of sugarcane crop to different nutrients

(ii) **Design** : R.B.D.

(iii) **Variety** :

(iv) **Replication** : Three

(v) **Plot size** : 6 x 4.5 sqm

(vi) **Weed Control** : As per treatments

(vii) **Fertilizer** : Recommended dose of fertilizer (NPK 200:60:40)

(viii) **Date of Planting** : 5.3.2011, 10.03.2012 , 15.3.2013 and 22.2.2014

(ix) **Date of Harvesting** : 15.2.2012, 16.02.2013 , 15.2.2014and 5.3.2015

(x) **Treatment :**

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. Soil test based fertilizer application
13. FYM @ 20 t/ha

Note:

S : 40 kg/ha-elemental sulphur (subtropical)

Zn : 25 kg $ZnSO_4$/ha (subtropical)

Fe : 5 kg $FeSO_4$/ha (subtropical)

Mn : 5 kg $MnSO_4$/ha (subtropical)

NPK : as per recommendations

7. **Physico-chemical properties of experimental soil:** The data in Table- AS 64.1 showed that soil of experimental trial was clay loam in texture, alkaline in reaction .The soil was medium in available phosphorus and high in available nitrogen, potassium, ferrous and manganese and deficient in sulphur and zinc.

Table : AS –64.1: Physico- chemical properties of the experimental field.

Parameters	Analyzed Value	Critical limit
Textural class	Clay loam	-
Bulk density (mg / m^3)	1.42	-
Particle density (mg / m^3)	2.65	-
Porosity (%)	46.00	-
EC (ds/m^2)	0.25	-
Soil pH (1:2.5)	8.20	-
Organic carbon (%)	0.54	0.5
Available N (Kg / ha)	362	250
Available $P_2 O_5$ (Kg / ha)	23.50	23
Available K_2O (Kg / ha)	283	144
Available Zn DTPA(mg / kg soil)	0.546	0.6
Available S (mg / kg soil)	9.60	10
Available Fe DTPA(mg / kg soil)	13.24	4.5
Available Mn DTPA (mg / kg soil)	20.78	2.0

8. Results:

A field experiments were planted on 5th March, 2011, 10th March, 2012 and 15th March, 2013,and 22.2.2014 to study the response of sugarcane to different nutrients. Sugarcane variety CoPK-05191 was planted at 75 cm row distance, keeping 3 budded 4 setts per meter row length. Fertilizer was applied as per treatment (phosphorus, potassium, sulphur, zinc, and manganese) along with ¼ doses of the nitrogen as basal. Remaining N was given in three splits within 120 days after planting. Cultural operations were followed as per recommendation as and when desired. Foliar spray of 1 % $FeSO_4$ was done as per the treatment. Initial soil was medium in organic carbon (0.54), available nitrogen (362 kg/ha), phosphorus (23.50 kg/ha) and high in potassium (283 kg/ha), iron (13.24 ppm), manganese (20.78 ppm) and low in sulphur(9.60 ppm) and zinc(0.55 ppm) contents.

During 2011-12 (Table AS 64.2), the experiment was planted on March, 5 2011 and harvested on February 15, 2012. The results indicated that germination (%) was almost equal in all the treatments (varied from 34.4 to 41.5 %). The observation recorded on tiller count at 120 and 180 DAP reveals that significantly difference was observed under all treatment over control.The T_7 treatment having high tiller count (167200 and 160000/ha) over absolute control (147700 and 134200 /ha) respectively.

Treatments applied with different nutrient combinations significantly enhance yield attributing characters via; cane length, cane girth and number of millable canes over absolute control. The highest cane length, cane girth and number of millable canes (225.9 cm, 9.8 cm & 126.8 000/ha) respectively were observed in T_9 treatment combination and lowest was recorded in absolute control (134.2cm, 7.0 cm and 108 000/ha) which ultimately increased significantly cane yield with respect to T_9 treatment combination over T_1 treatment.

During 2012-13 (TableAS 64.3) sugarcane variety CoPK 05191 was planted on March 10, 2012 keeping three budded 4 sets per meter row length. The crop was harvested on Feb. 20, 2013, germination percentage of sugarcane crop was recorded highest (49.2 %) in T_9, which was significantly higher over rest of the treatments except T_{10} and T_{11} treatment at 35 DAP stage of the crop growth. Tiller population was also significantly higher in T_9 which was superior over rest of the treatment at 80 and 120 DAP stage of the crop growth, except T_{10}

and T_{11} at stages of crop growth. Lowest tiller population was recorded in control at 80 and 120 DAP crop growth stage. Cane yield was recorded highest (95.38 t/ha) in T_9 treatment which was at par with treatment T_5, T_6, T_7, T_8, T_{10} and T_{11} and significantly higher than rest of the treatments. The higher cane yield in these treatments was due to higher cane length, cane girth and NMC/ha. CCS yield was highest in T_9 (13.46 t/ha) which was significantly higher over T_1, T_2, T_3, T_4, T_{12} and T_{13} treatments and at par with rest of the treatments.

During 2013-14 (Table AS 64.4, 5), experiment was planted on March 15, 2013 and harvested on Feb. 20, 2014.Germination percent (51.00) at 35 DAP and cane length (264.43 cm) at harvest was recorded highest in T_{10} which was significantly higher over rest of the treatments except T_9 and T_{11}.Tiller population at 90 (1, 63,530.00/ha) and 120 (1, 76,870.00/ha) DAP stage of crop growth was recorded maximum in treatment T_9 which was significantly higher over remaining of the treatments and at par with T_{10} and T_{11}. Cane girth, millable cane (1, 27,200.00/ha), cane yield (97.33 t/ha) and CCS (12.86 t/ha) were recorded significantly higher by application of NPK+ S+ Zn (T_9) over T_1,T_2 , T_3 and T_4 except the rest of treatments. The higher cane yield was the cumulative effect of higher cane length, girth and NMC/ha which were higher in this treatment over the rest. CCS % was also highest (13.22) in T_9 which was found significantly superior over control but at par with the rest of treatment which was due to higher juice sucrose percent in cane at harvest during 2013-14.Initial medium organic carbon content, available nitrogen and high potassium nutrients affected cane yield in treatment, where nutrients were applied alone (N or NP or NPK) as well as in combination of NPK with other nutrients like S, Zn,Fe and Mn. The highest available NPKS in soil was recorded in the treatment T_9 (322, 25.15, 252 and 12.20 kg / ha), respectively which was significantly higher over T_1, T_2 and T_3 in nitrogen except rest, phosphorus in rest of treatments except T_5 and T_6, potassium in T_1, T2, T_3, T10 and T11 except rest and sulphur in T_1, T2, T_3, T7 and T8 except rest of the treatments. Available Zn,Fe and Mn were found highest in T_6(0.62 mg/kg), T_7 (20.40 mg/kg), and T_6 (28.10mg/kg), respectively treatment soil which was significantly higher over T_1treatment except rest of the treatments. However, Zn value of the best treatment at par with T_7 and T_8, Fe value with T_6 T_3 and T_8 and Mn value with T_3. Non-significant variation in residual soil nutrient status might be the fact that all the treatments received same amount of NPK (AS 64.9).

Data presented in Table AS 64.10 revealed that there were differences in cost of cultivation, gross return and net return owing to different treatment cost. Maximum gross return, net return and B:C ratio recorded in the treatment T_9 which was fertilized with NPK+Zn+S. however, maximum cane production cost (Rs 1,09,500 / ha) recorded in treatment T_{13} owing to higher cost of FYM and lower added of nutrients, whereas minimum production cost ,GR and NR recorded in control plot(T_1).

During 2014-15, data presented in Table AS 64.6,7,8,9,10 revealed that same treatment effects were also reported in respect of growth, yield attributes yield, quality and soil properties.

9. Summary: Application of NPK+S+ Zn (200+60+40+40+5 kg/ha) was found suitable for increasing millable cane, cane yield and CCS which was significantly superior to control, N, NP, NPK,FYM treatments and NPK +Mn and at par with rest of the treatments.

10. Significant findings: Application of NPK+S+ Zn (200+60+40+40+5 kg/ha) found significantly superior in respect of millable cane (1,28,230/ha), cane yield (92.80 t/ha),CSS(12.48%) and CCS (11.56 t/ha) yield over control, N, NP, NPK, FYM treatments and NPK +Mn and at par with rest of the treatments on the basis of pooled analysis of four years.

11. Scientist attached: Dr. B.S.Meena

Table: AS 64.2: Effect of different plant nutrients of sugarcane with respect to yield attributing, yield and quality during 2011-12 at Kota.

Treatment	Germination (%) at 35 DAP	Tillers population (000/ha)		Cane length (cm)	NMC (000/ha)	Cane girth (cm)	Cane yield (t/ha)	CCS (%)	CCS (t/ha)
		80 DAP	120 DAP						
T1 – Control (No fertilizer)	34.4	134.2	147.7	185.7	108.9	7.0	50.67	11.94	6.04
T2 – N	37.3	149.8	159.2	198.1	118.4	8.4	67.00	12.86	8.60
T3 – NP	37.6	152.8	163.7	204.2	118.7	8.5	72.00	12.15	8.74
T4 - NPK	37.0	154.9	161.5	212.0	122.5	9.5	77.67	12.26	9.52
T5 – NPK+S	38.7	154.2	162.1	211.3	120.2	9.6	78.30	12.92	10.12
T6 – NPK+Zn	38.8	149.9	158.4	205.9	117.3	9.3	78.67	13.17	10.78
T7 – NPK+Fe	38.4	160.0	167.2	223.0	121.5	9.8	77.33	13.45	10.40
T8 – NPK+Mn	39.5	153.2	165.3	202.2	118.3	9.6	73.00	12.83	9.36
T9 – NPK+S+Zn	37.6	149.6	158.2	225.9	126.8	9.8	82.46	11.60	9.56
T10 - NPK+S+Zn+Fe	41.5	149.4	159.1	201.1	113.4	9.1	78.45	12.13	9.51
T11 - NPK+S+Zn+Fe+Mn	37.2	159.2	165.2	223.2	107.8	9.5	81.33	11.92	9.69
T12 - Soil test based fertilizer application	39.6	153.2	155.2	214.2	116.3	9.4	75.00	12.55	9.41
CD at 5%	NS	14.7	10.24	13.2	8.7	0.8	16.08	0.95	2.68

Table: AS 64.3: Effect of different plant nutrients of sugarcane with respect to yield attributing, yield and quality during 2012-13 at Kota.

Treatment	Germination (%) at 35 DAP	Tillers population (000/ha)		Cane length (cm)	NMC (000/ha)	Cane girth (cm)	Cane yield (t/ha)	CCS (%)	CCS (t/ha)
		80 DAP	120 DAP						
T1 – Control (No fertilizer)	33.9	107.1	127.2	172.8	99.6	8.1	58.4	12.53	7.32
T2 – N	42.1	130.5	141.8	207.4	110.1	9.7	75.1	13.5	10.12
T3 – NP	42.6	136.4	150.7	215.5	111.6	9.8	79.8	12.75	10.17
T4 - NPK	42.5	136.6	152.4	221.0	113.7	10.9	80.4	12.87	10.26
T5 – NPK+S	44.5	139.3	156.6	222.3	115.6	11.0	87.3	13.56	11.83
T6 – NPK+Zn	45.3	147.2	174.8	223.1	114.2	10.7	88.9	13.82	10.27
T7 – NPK+Fe	43.7	144.5	168.1	221.3	116.2	11.3	88.3	12.18	10.75
T8 – NPK+Mn	43.8	138.4	156.0	226.5	112.1	11.0	81.8	13.47	11.01
T9 – NPK+S+Zn	49.2	165.9	187.8	244.6	124.2	11.3	95.3	14.18	13.46
T10 - NPK+S+Zn+Fe	47.5	163.6	184.6	225.6	116.6	10.5	91.6	12.73	11.51
T11 - NPK+S+Zn+Fe+Mn	48.2	161.8	180.4	234.6	111.6	10.9	91.6	12.51	11.46
T12 - Soil test based fertilizer application	40.4	143.5	163.2	207.1	106.2	10.6	79.4	13.17	10.46
T13- FYM @ 20 t/ha	35.6	138.8	158.6	180.8	103.5	8.7	74.8	12.62	9.43
CD at 5%	4.6	14.7	10.24	44.4	17.0	0.9	15.5	1.12	2.90

Table: AS 64.4: Effect of different plant nutrients of sugarcane with respect to yield attributing, yield and quality during 2013-14 at Kota.

Treatment	Germination (%) at 35 DAP	Tillers population (000/ha)		Cane length (cm)	NMC (000/ha)	Cane girth (cm)	Cane yield (t/ha)	CCS (%)	CCS (t/ha)
		90 DAP	120 DAP						
T1 – Control (No fertilizer)	36.40	110.27	126.53	177.60	95.07	6.67	65.27	11.67	7.62
T2 – N	42.37	133.23	145.20	216.77	113.83	7.80	80.33	12.36	9.93
T3 – NP	42.50	140.63	150.07	221.80	115.37	8.07	81.63	12.10	9.87
T4 - NPK	42.73	143.73	150.80	232.37	117.13	8.40	83.00	13.16	10.93
T5 – NPK+S	45.50	145.50	155.67	240.03	120.23	8.57	88.57	13.12	11.62
T6 – NPK+Zn	45.63	147.50	154.73	242.40	117.70	8.00	89.53	13.06	11.69
T7 – NPK+Fe	45.70	146.27	155.10	243.00	118.07	8.60	88.93	13.14	11.68
T8 – NPK+Mn	44.30	142.27	150.53	248.57	115.63	8.50	84.37	13.14	11.08
T9 – NPK+S+Zn	51.00	163.53	176.87	262.00	127.20	9.40	97.33	13.22	12.86
T10 - NPK+S+Zn+Fe	51.17	162.23	175.20	264.43	123.63	9.00	94.50	13.16	12.44
T11 - NPK+S+Zn+Fe+Mn	49.73	155.00	170.40	256.43	119.57	8.47	93.20	13.15	12.25
T12 - Soil test based fertilizer application	45.37	140.37	157.00	242.00	108.47	8.90	82.27	12.76	10.50
T13- FYM @ 20 t/ha	37.77	138.50	153.63	196.67	99.80	6.73	75.53	12.91	9.75
SEm ±	1.45	4.97	5.20	9.42	4.96	0.53	4.64	0.40	0.65
CD at 5%	4.39	15.06	15.76	28.57	15.04	1.60	14.08	1.20	1.96

Table: AS 64.5: Effect of different plant nutrients of sugarcane with respect to plant height and quality during 2013-14 at Kota.

Treatment	Plant height (cm)		Brix (%)	Sucrose (%)
	120 DAP	180 DAP		
T1 – Control (No fertilizer)	7.005	154.00	19.57	17.01
T2 – N	104.83	200.67	20.47	17.93
T3 – NP	110.30	203.40	20.13	17.59
T4 - NPK	113.47	210.27	21.53	19.00
T5 – NPK+S	114.53	210.33	21.47	18.97
T6 – NPK+Zn	116.00	211.73	21.40	18.90
T7 – NPK+Fe	115.20	211.50	21.50	19.00
T8 – NPK+Mn	114.80	210.20	21.50	19.00
T9 – NPK+S+Zn	120.00	228.67	21.60	19.11
T10 - NPK+S+Zn+Fe	116.93	230.10	21.53	19.03
T11 - NPK+S+Zn+Fe+Mn	114.03	228.17	21.50	19.00
T12 - Soil test based fertilizer application	108.00	200.60	21.00	18.48
T13- FYM @ 20 t/ha	84.07	171.67	21.20	18.69
SEm ±	4.57	8.63	1.07	0.67
CD at 5%	13.86	26.18	3.23	2.02
CV	7.31	7.28	8.75	6.87

Table 64.6: Effect of different plant nutrients of sugarcane with respect to yield attributing, yield and quality during 2014-15 at Kota.

Treatment	Germination at 35 DAP (%)	Tillers (000/ha)		Cane length (cm)			NMC (000/ha)	Cane girth (cm)	Cane yield (t/ha)	Brix (%)	Sucrose (%)	CCS (%)	CCS (t/ha)
		90 DAP	120 DAP	120 DAP	180 DAP	At harvest							
T1 – Control (No fertilizer)	32.17	109.27	125.80	73.15	157.20	170.37	90.47	6.47	60.53	17.30	14.67	9.94	5.97
T2 – N	41.50	128.57	143.60	105.16	198.60	209.40	112.83	7.70	72.70	18.20	15.60	10.63	7.73
T3 – NP	42.17	135.17	151.33	111.25	201.40	221.03	116.30	8.05	75.47	18.63	16.04	10.96	8.25
T4 - NPK	42.70	136.90	151.80	115.10	212.30	224.20	116.67	8.37	81.50	19.37	16.80	11.52	9.41
T5 – NPK+S	43.23	137.90	154.37	116.07	212.47	225.33	119.73	8.63	85.63	19.57	17.01	11.67	9.99
T6 – NPK+Zn	44.20	146.67	153.87	117.15	213.00	223.33	117.03	8.10	84.57	19.37	16.80	11.52	9.74
T7 – NPK+Fe	42.53	145.53	154.37	116.00	209.70	230.70	120.80	8.63	83.87	18.13	15.53	10.58	8.91
T8 – NPK+Mn	42.73	137.73	148.73	114.30	215.95	222.60	116.57	8.62	78.97	18.20	15.60	10.63	8.42
T9 – NPK+S+Zn	50.17	160.70	175.33	121.70	235.10	250.93	130.40	9.33	93.90	19.93	17.38	11.95	11.15
T10 - NPK+S+Zn+Fe	48.07	157.47	174.50	116.40	230.15	240.37	124.60	9.15	89.67	18.77	16.18	11.06	9.91
T11 - NPK+S+Zn+Fe+Mn	47.73	157.40	170.40	115.00	207.10	239.67	121.40	8.50	90.30	18.87	16.29	11.13	10.05
T12 - Soil test based fertilizer application	45.23	155.87	167.00	117.80	220.70	241.63	123.87	9.07	87.73	19.20	16.63	11.39	10.00
T13- FYM @ 20 t/ha	40.00	146.03	155.67	95.19	185.40	215.70	110.40	7.73	75.53	18.67	16.08	10.98	8.26
SEm ±	2.14	5.23	5.10	4.61	8.40	10.06	6.43	0.51	5.11	0.47	0.49	0.36	0.58
CD (P=0.05)	6.49	15.86	15.46	13.95	25.36	30.53	19.51	1.55	15.49	1.44	1.48	1.09	1.76
CV	8.56	6.35	5.66	7.85	7.55	7.77	9.52	10.60	10.84	4.37	5.22	5.64	11.10

Table 64.7: Effect of different plant nutrients to germination, tillers cane length and NMC in sugarcane in 4 consecutive years(2011-12,2012-13,2013-14 and 2014-15) at Kota.

Treatment	**Germination (%) at 35 DAP**		**Tillers (000/ha)**				**Cane length at harvest**		**NMC (000/ha)**	
			90 DAP		**120 DAP**					
	2014-15	Pooled of 4 year	2014-15	Pooled of 4 year	2014-15	Pooled of 4year	2014-15	Pooled of 4 year	2014-15	Pooled of 4 year
T1 – Control (No fertilizer)	32.17	33.54	109.27	115.21	125.80	129.81	170.37	174.54	90.47	95.83
T2 – N	41.50	41.05	128.57	135.53	143.60	146.17	209.40	208.41	112.83	113.29
T3 – NP	42.17	41.54	135.17	141.25	151.33	153.08	221.03	217.43	116.30	115.76
T4 - NPK	42.70	41.72	136.90	143.03	151.80	153.35	224.20	222.99	116.67	117.23
T5 – NPK+S	43.23	43.07	137.90	144.23	154.37	156.25	225.33	224.94	119.73	119.21
T6 – NPK+Zn	44.20	43.72	146.67	147.82	153.87	158.25	223.33	223.57	117.03	116.72
T7 – NPK+Fe	42.53	42.57	145.53	149.07	154.37	158.92	230.70	229.90	120.80	119.70
T8 – NPK+Mn	42.73	42.63	137.73	107.33	148.73	153.00	222.60	225.76	116.57	115.96
T9 – NPK+S+Zn	50.17	48.05	160.70	159.93	175.33	174.81	250.93	247.55	130.40	128.23
T10 - NPK+S+Zn+Fe	48.07	47.40	157.47	158.18	174.50	173.74	240.37	235.38	124.60	121.24
T11 - NPK+S+Zn+Fe+Mn	47.73	46.39	157.40	158.35	170.40	171.20	239.67	238.87	121.40	117.20
T12 - Soil test based fertilizer application	45.23	43.51	155.87	148.24	167.00	162.74	241.63	231.37	123.87	117.10
T13- FYM @ 20 t/ha	40.00	38.35	146.03	141.11	155.67	155.90	215.70	202.22	110.40	106.03
SEm ±	2.14	1.56	5.23	4.45	5.10	3.72	10.06	8.37	6.43	5.36
CD (P=0.05)	6.49	4.38	15.86	12.48	15.46	10.43	30.53	23.48	19.51	15.03
CV	8.56	7.90	6.35	6.70	5.66	5.78	7.77	7.70	9.52	9.20

Table 64.8: Effect of different plant nutrients to cane girth, cane yield and quality in sugarcane in 4 consecutive years (2011-12, 2012-13, 2013-14 and 2014-15) at Kota.

Treatment	Cane girth (cm)		Cane yield (t/ha)		Sucrose (%)		CCS (%)		CCS (t/ha)	
	2014-15	Pooled of 4 year	2014-15	Pooled of 4 year	2014-15	Pooled of 4 year	2014-15	Pooled of 4 year	2014-15	Pooled of 4 year
T1 – Control (No fertilizer)	6.47	6.87	60.53	59.32	14.67	15.84	9.94	11.00	5.97	6.48
T2 – N	7.70	8.17	72.70	73.42	15.60	16.77	10.63	11.77	7.73	8.64
T3 – NP	8.05	8.42	75.47	76.64	16.04	16.82	10.96	11.65	8.25	8.92
T4 - NPK	8.37	8.99	81.50	80.93	16.80	17.90	11.52	12.14	9.41	9.83
T5 – NPK+S	8.63	9.18	85.63	85.18	17.01	17.99	11.67	12.44	9.99	10.59
T6 – NPK+Zn	8.10	8.72	84.57	85.14	16.80	17.85	11.52	12.44	9.74	10.33
T7 – NPK+Fe	8.63	9.27	83.87	84.36	15.53	17.27	10.58	11.75	8.91	9.93
T8 – NPK+Mn	8.62	9.16	78.97	79.22	15.60	17.30	10.63	11.89	8.42	9.45
T9 – NPK+S+Zn	9.33	9.75	93.90	92.80	17.38	18.25	11.95	12.48	11.15	11.56
T10 - NPK+S+Zn+Fe	9.15	9.34	89.67	88.93	16.18	17.61	11.06	11.87	9.91	10.53
T11 - NPK+S+Zn+Fe+Mn	8.50	9.06	90.30	89.50	16.29	17.65	11.13	11.83	10.05	10.59
T12 - Soil test based fertilizer application	9.07	9.35	87.73	83.31	16.63	17.56	11.39	12.11	10.00	10.06
T13- FYM @ 20 t/ha	7.73	7.73	75.53	75.35	16.08	17.39	10.98	11.88	8.26	8.93
SEm ±	0.51	.36	5.11	4.44	0.49	0.52	0.36	0.32	0.58	0.69
CD (P=0.05)	1.55	1.00	15.49	12.45	1.48	1.46	1.09	0.90	1.76	1.94
CV	10.60	10.15	10.84	10.50	5.22	6.04	5.64	5.53	11.10	10.50

Table: AS 64.9: Effect of different plant nutrients on soil properties after completion of four year crop cycle (2011-12 to 2014-15) at Kota

Treatment	OC (%)	Soil pH	EC (ds/m^2)	Nutrient status of soil						
				N (kg/ha)	P_2O_5 (kg/ha)	K_2O (kg/ha)	S (ppm)	Zn (ppm)	Fe (ppm)	Mn (ppm)
T1 – Control (No fertilizer)	0.47	8.07	0.30	250	15.30	205	6.40	0.40	14.12	20.60
T2 – N	0.46	8.10	0.32	307	18.40	215	7.42	0.42	15.05	22.30
T3 – NP	0.48	8.07	0.28	309	20.60	223	6.75	0.46	16.15	23.30
T4 - NPK	0.48	8.08	0.34	306	22.40	250	7.80	0.50	17.30	27.90
T5 – NPK+S	0.48	8.05	0.30	310	22.50	248	11.70	0.50	17.15	23.45
T6 – NPK+Zn	0.49	8.10	0.30	316	22.10	249	9.40	0.62	16.20	24.56
T7 – NPK+Fe	0.48	8.00	0.35	310	16.70	245	7.42	0.47	20.40	24.32
T8 – NPK+Mn	0.47	8.12	0.35	309	16.30	230	7.55	0.46	16.42	28.10
T9 – NPK+S+Zn	0.49	8.10	0.31	322	25.15	252	12.2	0.60	19.00	23.33
T10 - NPK+S+Zn+Fe	0.48	8.15	0.33	317	16.70	223	10.15	0.55	20.15	27.30
T11 - NPK+S+Zn+Fe+Mn	0.47	8.20	0.33	315	16.90	219	10.25	0.54	19.40	28.02
T12 - Soil test based fertilizer application	0.48	8.10	0.31	204	21.80	245	10.30	0.52	17.45	25.17
T13- FYM @ 20 t/ha	0.51	7.90	0.30	215	20.15	220	10.20	0.49	17.00	25.90
SEm ±	0.08	0.17	0.09	15.70	2.10	8.04	1.59	0.06	1.27	1.65
CD (P=0.05)	NS	NS	NS	47.78	6.35	24.36	4.80	0.14	3.80	4.95
Initial	0.54	8.20	0.25	362	23.50	283	9.60	0.55	13.24	20.78

Table: AS 64.10: Cost and economics of different nutrient management treatments in sugarcane during 2014-15 at Kota.

Treatment	Treatment cost (Rs/ha)	Production cost(Rs/ha)	Gross returns (Rs/ha)	Net returns (Rs/ha)	B: C ratio
T1 – Control (No fertilizer)	0	93,500	1,39,227	45,727	1.48
T2 – N	2,640	96,140	1,67,210	71,070	1.74
T3 – NP	5,616	99,116	1,73,573	74,457	1.75
T4 - NPK	6,768	100,268	1,87,450	87,182	1.87
T5 – NPK+S	8,168	101,668	1,96,957	95,289	1.94
T6 – NPK+Zn	7,786	101,286	1,94,503	93,217	1.92
T7 – NPK+Fe	7,768	101,268	1,92,893	91,625	1.90
T8 – NPK+Mn	7,568	101,068	1,81,623	80,555	1.80
T9 – NPK+S+Zn	10,186	103,686	2,15,970	1,12,284	2.08
T10 - NPK+S+Zn+Fe	11,186	104,686	2,06,233	1,01,547	1.97
T11 - NPK+S+Zn+Fe+Mn	12,086	105,586	2,07,690	1,02,104	1.97
T12 - STBR	6,149	99,642	2,01,787	1,02,145	2.03
T13- FYM @ 20 t/ha	16,000	109,500	1,73,727	64,227	1.59
SEm ±	-	-	11,745	11,745	0.12
CD (P=0.05)	-	-	35,623	35,623	0.35
CV	-	-	10.84	23.58	10.87

Common cost of cultivation: Rs 93,500 / ha **Cane price:** Rs 2300/ton

Rate of fertilizers (Rs / kg): Urea = 6, SSP =8, MOP =18, Fe EDTA =1000, ZnSO4 = 40.70, Sulphur =35, $MnSO_4$ & $FeSO_4$ = 60, Mn EDTA= 950, FYM =800/ton,

Expt. No. AS 66 /Sugarcane/Agronomy/Kota/2014-15/Spring -3

1	**Name of the Project**	:	AICRP on Sugarcane
2	**Location**	:	Agriculture Research Station, Kota
3	**Title of Experiment**	:	Priming of cane node for accelerating germination
4	**Year of start**	:	Spring 2012-13
5	**Brief description of the experiment**		
(i)	**Objective**	:	1.To find out suitable cane node priming technique 2.To assess the effect of cane node on acceleration of germination
(ii)	**Design**	:	R.B.D.
(iii)	**Variety**	:	COPK 05191
(iv)	**Replication**	:	Three
(v)	**Plot size**	:	6 x 4.5 sqm
(vi)	**Weed Control**	:	As per treatments
(vii)	**Fertilizer**	:	Recommended dose of fertilizer (NPK 200:60:40)

(viii)	**Date of Planting**	:	**Ist year** 15.03.2012	**IInd year** 13.03.2013	**IIInd year** 23.2.2014
(ix)	**Date of Harvesting**	:	17.02.2013	20.02.2014	7.3.2015

(x) **Treatment :**

T1 : Un-primed cane node
T2 : Treating cane node in hot water at 50^0C for 2 hours
T3 : Treating cane node in hot water at (50^0C) urea solution (3%) for 2 hours
T4 : Priming cane node with cattle dung, cattle urine and water in 1:2:5 ratio
T5 : Conventional 3-bed sett planting
*T6 : Primed and sprouted cane node (incubated for four days after priming)
(* Put the single cane node in the slurry of cattle dung, cattle 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).

6. Physico-chemical properties of experimental soil:

The data in Table- AS 66.1 showed that soil of the experimental field was clay loam in texture, alkaline in reaction, medium in organic carbon, available phosphorus and high in available nitrogen and potassium and deficient in sulphur and zinc.

Table :AS 66.1 : Physico- chemical properties of the experimental field.

Parameters	Value
Textural class	Clay loam
Bulk density (mg/m^3)	1.42
Particle density (mg/m^3)	2.64
Porosity (%)	46.00
Soil pH (1:2.5)	8.18
Organic carbon	0.53
Available N (Kg/ha)	365
Available $P_2 O_5$ (Kg/ha)	23.40
Available K_2O (Kg/ha)	282
Available Zn (DTPA)	0.556
Available S (ppm)	9.50
Available Fe (DTPA)	13.70
Available Mn (ppm) DTPA	20.75

7. Results:

The experiment with CoPK 05191 was planted on March 15, 2012, march13,2013and 23.2.2014 keeping three budded four setts per meter row length at 75 cm row to row distance with the objective of assessing suitable cane node priming technique for accelerating germination and to cut down the seed cost. Recommended dose of fertilizer to each treatment was applied.

During 2012-13 (Table AS 66.2) showed that different priming techniques significantly affect the germination at 20 and 30 DAP except 10 DAP crop growth stage. The germination % was recorded highest in T_4 (43.6 %) over rest of the treatment except T_6 treatment at 30 DAP. Shoot population was also higher in T_4 treatment which was superior over rest of the treatment at 90-120 and 150 DAP stage of the crop growth. Cane yield recorded highest (76.80 t/ha) in T_4 which was at par with T_6 and significantly higher over other treatments. The highest cane yield in these treatments was due to higher cane length, cane girth and NMC / ha. CCS yield was also highest in T_4 treatment (10.06 t / ha) which was significantly higher over T_1 and at par with T_2, T_3, T_5 and T_6.

During 2013-14 (Table AS 66.3)) revealed that different priming techniques significantly influence the germination at 20, 30 and 40DAP over unprimed and at par with each other except 10 DAP crop growth stage. The germination % and tillers count was receded significantly higher in T_4 (52.68 %) over rest of the treatment except conventional three bud sett andT_6 treatment at 40 DAP. Conventional 3 bud sett (T_5), primed cane node in hot water at (50^0C) urea solution (3%) for 2 hours (T_3), priming cane node with cattle dung, cattle urine and water in 1:2:5 ratios (T_4) or T_6 germinated cane eyes significantly better when compared with unprimed cane node. Cane yield (92.35 t/ha) and CCS (11.85 t/ha) were recorded significantly better under priming cane node with cattle dung, cattle urine and water in 1:2:5 ratio (T_4) as compared to T_1,T_2,T_3 and T_5 and at par with T_6 (90.28 t/ ha). Crop planted by 3-bud sett, use of huge seed cane (70.0q/ha) whereas only 23 q/ha seed cane as used in cane node planting method. Highest brix % 21.10) was also recorded in T_4 whereas sucrose % (18.59) and CCS % (12.84) were also recorded in 3-bud sett treatment which was significantly higher unprimed (T1) and at par with rest of the treatments.

During 2014-15(Table AS 66.4) revealed that Number of tillers, cane length, cane girth and millable cane and cane yield also exhibited the same trend as recorded in 2013-14 in different treatments.

8. Summary: Priming cane node with cattle dung, cattle urine and water in 1:2:5 ratio was suitable for increasing millable cane (97,450 /ha), cane yield (93t/ha) which was significantly superior over un-primed cane node, conventional 3- bud sett planting treatment, T_2 and T_3 except T_6.

9. Significant findings: Priming cane node with cattle dung, cattle urine and water in 1:2:5 ratio was found suitable for increasing cane yield which was significantly superior over un-primed cane node, conventional 3- bud sett planting treatment, T_2 and T_3 except T_6. The highest GR (Rs1, 80,700/ha) and BCR (1.97) were also noted under the same treatment on mean of three years.

10. **Scientist attached**: Dr. B.S. Meena

Table: AS 66.2: Effect of Priming of cane node for accelerating the sugarcane production during 2012-13at Kota.

Treatment	Germination (%)			Tillers (000 ha)				Cane length (cm)	Cane girth (cm)	NMC (000 ha)	CCS (%)	Yield (t/ha)	CCS (t/ha)
	10 DAP	20 DAP	30 DAP	60DAP	90 DAP	120 DAP	150 DAP						
T1 :	7.1	23.1	33.7	17.08	53.20	86.66	90.33	2.92	8.39	52.57	12.9	69.37	6.78
T2 :	6.4	26.4	35.2	18.13	57.37	90.22	95.17	2.98	8.39	69.06	13.3	71.33	9.18
T3 :	7.4	27.2	36.2	17.50	59.59	87.46	91.81	3.05	8.61	70.08	13.3	74.07	9.32
T4 :	7.8	37.9	43.6	20.75	52.75	94.08	100.32	3.32	8.83	76.80	13.1	88.62	10.06
T5 :	7.5	31.2	33.7	19.28	57.91	91.19	96.11	2.90	8.40	63.20	13.2	70.26	8.34
*T6 :	7.6	34.5	42.9	21.73	60.22	94.44	100.86	3.26	8.79	76.26	13.0	86.03	9.91
CD at 5%	NS	8.5	5.5	NS	3.19	3.69	5.19	0.12	0.12	3.19	NS	6.8	3.1

T1 : Un-primed cane node
T2 : Treating cane node in hot water at 50^0C for 2 hours
T3 : Treating cane node in hot water at (50^0C) urea solution (3%) for 2 hours
T4 : Priming cane node with cattle dung, cattle urine and water in 1:2:5 ratio
T5 : Conventional 3-bed sett planting
*T6 : Primed and sprouted cane node (incubated for four days after priming)
(* Put the single cane node in the slurry of cattle dung, cattle 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).

Table: AS 66.3: Effect of Priming of cane node for accelerating the sugarcane production during 2013-14at kota.

Treatment	Germination (%)				Tillers (000 ha)				Cane length (cm)	Cane girth (cm)	NMC (000 ha)	Brix (%)	Sucrose (%)	CCS (%)	Yield (t/ha)	CCS (t/ha)
	10 DAP	20 DAP	30 DAP	40 DAP	60 DAP	90 DAP	120 DAP	150 DAP								
T1 :	6.30	18.55	33.63	37.83	17.80	57.05	87.13	107.80	252.55	7.60	74.10	19.23	16.66	11.41	71.55	8.16
T2 :	6.90	20.70	35.65	41.20	19.60	65.18	93.90	116.58	271.68	7.83	88.95	20.30	17.76	12.22	76.95	9.41
T3 :	7.00	20.88	37.15	45.60	19.75	68.85	92.53	116.20	272.50	8.24	89.45	20.40	17.87	12.30	75.43	9.28
T4 :	7.38	23.88	40.65	52.68	20.35	68.83	103.10	127.90	276.03	8.88	99.20	21.10	18.59	12.84	92.35	11.85
T5 :	7.30	21.08	38.65	46.60	19.53	67.08	97.60	123.75	286.25	8.44	76.58	20.23	17.69	12.19	76.98	9.37
*T6 :	7.25	19.78	37.20	51.30	19.73	67.73	100.78	126.85	285.05	8.70	96.90	21.10	18.58	12.83	90.28	11.60
SEm ±	0.50	1.00	1.40	2.10	1.50	2.80	3.90	5.10	8.00	0.30	5.10	0.40	0.50	0.20	3.90	0.60
CD at 5%	1.40	3.20	4.20	6.50	4.50	8.50	11.80	15.40	24.30	1.00	15.50	1.20	1.50	0.70	11.70	2.00
CV	11.40	8.60	6.50	8.10	13.10	7.40	7.00	7.30	5.10	6.70	10.10	3.30	4.70	3.40	8.30	11.20

T1 : Un-primed cane node
T2 : Treating cane node in hot water at 50^0C for 2 hours
T3 : Treating cane node in hot water at (50^0C) urea solution (3%) for 2 hours
T4 : Priming cane node with cattle dung, cattle urine and water in 1:2:5 ratio
T5 : Conventional 3-bed sett planting
*T6 : Primed and sprouted cane node (incubated for four days after priming
(* Put the single cane node in the slurry of cattle dung, cattle 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).

Table: AS 66.4: Effect of Priming of cane node for accelerating the sugarcane production during 2014-15 at Kota.

Treatment	Germination (%)				Tillers (000/ ha)				Cane length (cm)	Cane girth (cm)	NMC (000/ ha)	Yield (t/ha)	Brix (%)	Sucrose (%)	CCS (%)	CCS (t/ha)
	10 DAP	20 DAP	30 DAP	40 DAP	60 DAP	90 DAP	120 DAP	150 DAP								
T1 :	6.34	17.73	33.00	38.15	18.10	56.70	88.15	107.90	250.50	7.64	75.20	70.75	19.15	16.58	11.35	8.04
T2 :	6.83	19.97	33.50	42.21	18.75	63.00	92.83	117.41	270.83	7.85	85.58	76.80	19.35	16.78	11.50	8.84
T3 :	6.96	20.10	34.41	46.80	19.30	65.18	91.40	117.10	271.50	8.29	86.40	77.00	20.30	17.76	12.23	9.41
T4 :	7.15	22.71	39.90	50.40	20.35	65.16	104.45	128.45	281.25	8.80	97.45	93.00	20.48	17.94	12.36	11.49
T5 :	7.21	22.00	39.70	48.75	19.00	65.30	102.38	127.20	278.08	8.75	90.00	80.30	20.26	17.72	12.20	9.77
*T6 :	7.10	20.50	39.40	48.40	19.10	65.10	97.65	126.80	278.80	8.70	95.85	90.35	20.38	17.84	12.28	11.09
SEm ±	0.30	0.96	1.37	2.28	1.47	2.30	4.20	5.00	7.40	0.30	5.10	3.70	0.40	0.40	0.30	0.50
CD (P=0.05)	0.90	2.93	4.16	6.90	NS	6.90	12.60	15.00	22.50	1.00	15.60	11.30	1.22	1.20	0.92	1.40
CV	7.60	8.15	6.48	8.61	13.29	6.20	7.50	7.10	4.70	6.80	10.10	7.90	3.40	4.00	5.00	8.10

Table: AS 66.5: Cost and economics of priming cane node treatments in sugarcane (Mean of 3 years)

Treatment	Production cost(Rs/ha)	Gross returns(Rs/ha)	Net returns(Rs/ha)	B: C ratio
T1	90,400	1,40,920	50,520	1.56
T2	90,900	1,48,280	57,380	1.63
T3	90,920	1,49,500	58,580	1.64
T4	91,800	1,80,700	88,900	1.97
T5	97,800	1,47,240	49,440	1.51
*T6	93,300	1,76,320	83,020	1.89

Expt.No.AS 68/ARS Kota/Sugarcane/Agronomy/2014-15/ Spring-4

1.	Name of the project	:	All India Coordinated Research Project on Sugarcane	
2.	Location	:	Agriculture Research Station, Kota	
3.	Title of the experiment	:	Impact of integrated application of organics and inorganics in improving soil health and sugarcane productivity	
4.	Year of start	:	2014 -15	
5	Year of completion		2016-17	
5.	Brief description of the experiment :			
	(i) Objectives	:	To develop nutrient management strategy for sustaining soil health and sugarcane production.	
	(ii) Treatments	:	T_1 : No organic + 50% RDF (100:30:20 kg $NP_2O_5K_2O$/ha) T_2 : No organic + 100% RDF(200:60:40 kg $NP_2O_5K_2O$/ha) T_3 : No organic + STBR(150:50:30 kg $NP_2O_5K_2O$/ha) T_4 : Application of FYM/Compost @ 20tonnes/ha+50%RDF(inorganic source) T_5 : Application of FYM/Compost @ 20 tonnes / ha +100%RDF(inorganic source) T_6 : Application of FYM/Compost @ 20 tonnes / ha + in organic nutrient application based on soil test (rating chart) T_7 : Application of FYM/Compost @ 10 tonnes / ha + biofertilizer (*Azotobacter/ Acetobacter* + *PSB*) + 50% RDF T_8 : Application of FYM/Compost @ 10 tonnes / ha + biofertilizer (*Azotobacter/ Acetobacter* + *PSB*) + 100% RDF T_9 : Application of FYM/Compost @ 10 tonnes / ha + biofertilizer (*Azotobacter/ Acetobacter* + *PSB*) + soil test basis	
	(iii)	Design	:	RBD
	(iv)	No. of replications	:	3
	(v)	Spacing	:	Recommended row spacing of the zone
	(vi)	Plot size (gross)	:	6 x 4.5 (27 M^2) (6row; 6 m length)
	(vii)	No. of rows	:	6
	(viii)	Other experiment details		
	((ix)	Fertilizer doses	:	As per treatments 1. The application rate of biofertilizer (*Azotobacter* + PSB) 5 kg/acre (solid based fertilizer 10^{7-8}cfu). 2. $ZnSO_4$ @ 25 kg/ha applied at the start of the cycle. 3. Trash inoculated with cellulolytic organism such as *Trichoderma viride* @ 500 g/tonne.
	(x)	Cultural practices	:	Earthing up, Tying , Detrashing and Propping as & when required, Spray of atrazine @ 2.0 kg a.i. / ha as PE followed one hand weeding at 60DAP.
	(xi)	Variety	:	CoPK-05191 (Pratap Ganna-1)
	(xii)	Date of Planting	:	21.2.2014
	(xiii)	Date of harvesting	:	10.03.2015

6. Physico-chemical properties of experimental soil:

Table- AS 68.1 showed that soil of the experimental field was clay loam in texture, alkaline in reaction, medium in organic carbon, available phosphorus and high in available nitrogen and potassium and deficient in zinc.

Table :AS 68.1 : Physico- chemical properties of the experimental field.

Parameters	Value
Textural class	Clay loam
Bulk density (mg/m^3)	1.40
Particle density (mg/m^3)	2.64
Porosity (%)	46.00
Soil pH (1:2.5)	8.22
Ec (ds/m^2)	0.34
Organic carbon (%)	0.50
Available N (Kg/ha)	361
Available $P_2 O_5$ (Kg/ha)	23.5
Available K_2O (Kg/ha)	325
Available Zn (DTPA)	0.55

7. Results: A field experiment was planted during 2014-15 at ARS, Kota to develop nutrient management strategy for sustaining soil health and sugarcane production. Sugarcane variety CoPK-05191 was planted at 75 cm row distance, keeping 3 budded 4 setts per meter row length. Fertilizer, FYM and biofertilizer were applied as per treatment. Cultural operations were followed as per recommendation as and when desired. Data presented in table AS 68.2 revealed that significantly higher germination (45.53 and 50.97 %) at 30 and 45 DAP, Tillers at 120 DAP(1,75,400/ha) and NMC(1,32,100/ha) was obtained with the application of 100%RDF through inorganic source enriched with 10 t FYM /ha +12.5 + 12.5 kg / ha (Azotobactor + PSB) over T_1,T_4 and T_7 treatments. However, other treatments were at par with each other. Whereas tillers population at 150 DAP (1, 86,670/ha) and cane girth (9.70 cm) was recorded maximum in T9 treatment which was significantly higher over T_1, T_4 and T_7 and at par with rest of treatments. Longer (255.03 cm) and single cane weight (856 g) were also harvested with application of 20 t FYM / ha along with inorganic nutrient application based on soil test, significantly higher over T_1,T_4 and T_7 in cane length and single cane weight only T_1 and at par with rest of treatments. Application of 100%RDF/ STBR with organic manure or biofertilizer were increased millable cane, cane length and individual cane weight and observed superior as compared to control.

Data presented in Table AS 68.3 revealed that cane yield (98.20 t/ha) and CCS (12.10 t/ha) were recorded significantly higher by application of in organic nutrient based on soil test enriched with 10 t FYM /ha +12.5 + 12.5kg/ha (Azotobactor + PSB) over T_1, T_4 and T_7 treatments and at par with rest of treatments. The higher cane yield was the cumulative effect of higher cane length, girth and NMC. However, quality parameter i.e. brix (20.40%),sucrose (17.87%),CCS(12.30% and purity(87.56%) were recorded maximum under application of inorganic nutrient based on soil testing along with 20 t FYM/ha which was significantly superior over T_1,T_4 and T_7 treatments except rest of treatments. Significant increase in soil organic carbon (0.54%) and infiltration rate (4.70 mm/hr) was also obtained by application of inorganic nutrient based on soil testing along with 20 t FYM/ha over T_1, T_2 and T_3 treatments and at par with rest. FYM application in combination of either 100 %RDF or STBR increased SOC and infiltration rate over without added FYM and biofertilizer treated plots. Increase in infiltration rate can be attributed to increase SOM. Water stable aggregates increased with application of FYM (Table AS68.4).Soil pH (8.14) and bulk density (1.35 mg/m2) of soil reduced with application of T6 treatment over T1, T2 and T3 treatments and at par with rest. Application of inorganic nutrients enriched biofertilizer with FYM also loosened soil and showed lowest values of bulk density. Lower bulk density and soil pH determinate in manure

treated plots was because of higher OM content of soil increased root growth, better aggregation and increased volume of micro pores. Application of inorganic nutrients enriched biofertilizer with FYM could not influence EC significantly over application of inorganic nutrient treatments. These results suggested that added organic substances either through plant residues or manure/ biofertilizer conserved soil organic carbon to a greater extent. Significantly higher available N (340 kg/ha) in soil was obtained with T_5 treatment over T_1, T_2 and T_3 treatments and at par with rest. Whereas higher available P (25.65 kg/ha) was noted with T_9 which was significantly superior over T_1, T_2 and T_3 treatments except rest of treatments.Available K (325 kg/ha) in soil also increased significantly with T_6 over T_1, T_2 and T_3 treatments. Application of inorganic nutrient either 100% RDF or STBR along with 20/10tFYM/ha enriched with biofertilizer ensured C addition and increase in microbial activity. Manure application significantly increased SOC and NPK availability as compared to no use of organic. It indicated that application of biofertilizer enriched with FYM improving soil structure, SOC and available nutrients status in soil during plant crop growth.
Data presented in table AS 68.5 revealed that there were differences in cost of cultivation, GR, NR owing to different treatment cost. The higher GR, NR and BCR recorded with application of T_9 treatment which was significantly higher over T_1, T_4 and T_7 and at par with rest of treatments. However, maximum cane production cost(Rs1,17,804/ha) recorded in T_5 treatment owing to higher cost of FYM and lower added of nutrients, whereas. Lowest production cost, GR and NR recorded in T_1.

8. Summary: Among the treatment combination of nutrient management strategy, application of based on soil test (150:50:30 kg N P_2 O_5 K_2 O / ha) through inorganic source enriched with 10 t FYM /ha +12.5 + 12.5kg/ha (Azotobactor + PSB) was found excellent for increasing cane yield (98.20 t/ha), CCS yield (12.10 t/ha) and returns which was significantly superior over T_1, T_4 and T_7 treatments except rest treatments. Whereas, application of 150:50:30 kg $NP_2O_5K_2O$/ha (STB) through inorganic source enriched with 20 t FYM /ha (T6) found significantly superior and nest best treatment in respect of growth, quality and improving status of soil.

9. Significant findings: The experiment is ongoing in second year.

10. **Scientist attached**: Dr. B.S. Meena

Table: AS 68.2: Integrated applications of organics and in organics on germination, growth and yield attributes of sugarcane during 2014-15 at Kota

Treatment	Germination (%)		Tillers (000 /ha)		Cane length (cm)	Cane girth (cm)	NMC (000/ ha)	Cane weight (g)
	30 DAP	45 DAP	120DAP	150DAP				
T_1 - No organic + 50% RDF	36.60	40.50	143.63	155.03	210.00	6.67	100.77	638.33
T_2 - No organic + 100% RDF	42.83	43.57	165.47	175.40	230.67	8.47	121.00	821.67
T_3 - No organic + soil test based recommendation	41.43	43.30	165.23	175.17	235.53	8.53	118.40	816.67
T_4 – Application of FYM/Compost @ 20tonnes/ha +50%RDF (inorganic source)	38.37	41.40	157.07	168.10	227.43	7.50	111.67	808.33
T_5 -Application of FYM/Compost @ 20 tonnes / ha +100%RDF (inorganic source)	45.05	49.93	172.63	182.53	252.33	8.60	128.67	840.00
T_6 -Application of FYM/Compost @ 20 tonnes / ha + in organic nutrient application based on soil test (rating chart)	43.40	45.50	171.63	184.27	255.03	8.50	131.40	856.00
T_7 -Application of FYM/Compost @ 10 tonnes / ha + biofertilizer (*Azotobacter/ Acetobacter* + *PSB*) + 50% RDF	39.83	43.37	157.83	168.73	228.00	7.53	113.00	820.00
T_8 Application of FYM/Compost @ 10 tonnes / ha + biofertilizer (*Azotobacter/ Acetobacter* + *PSB*) + 100% RDF	45.53	50.97	175.40	184.00	252.37	8.63	132.10	850.00
T_9 -Application of FYM/Compost @ 10 tonnes / ha + biofertilizer (*Azotobacter/ Acetobacter* + *PSB*) + soil test basis	44.10	47.40	172.07	186.67	251.70	9.70	130.23	834.67
SEm ±	1.89	2.14	5.85	5.51	8.86	0.53	5.99	40.46
CD (P=0.05)	5.73	6.49	17.75	16.72	26.87	1.60	18.17	122.72
CV	7.81	11.87	6.16	5.44	6.44	11.08	8.59	8.68

Table: AS 68. 3: Effect of integrated application of organics and inorganics on cane yield, quality and soil health during 2014-15 at Kota.

Treatment	Cane yield (t/ha)	Brix (%)	Sucrose (%)	CCS (%)	CCS (t/ha)	Purity (%)
T_1 - No organic + 50% RDF	75.40	17.83	15.22	10.35	7.83	85.33
T_2 - No organic + 100% RDF	92.00	18.07	15.46	10.53	9.70	85.53
T_3 - No organic + soil test based recommendation	90.33	19.00	16.42	11.24	10.15	86.42
T_4 – Application of FYM/Compost @ 20tonnes/ha +50%RDF(inorganic source)	80.87	19.53	16.97	11.64	9.41	86.88
T_5 -Application of FYM/Compost @ 20 tonnes / ha +100%RDF(inorganic source)	95.00	20.30	17.76	12.23	11.63	87.49
T_6 -Application of FYM/Compost @ 20 tonnes / ha + in organic nutrient application based on soil test (rating chart)	97.40	20.40	17.87	12.30	12.01	87.56
T_7 -Application of FYM/Compost @ 10 tonnes / ha + biofertilizer (*Azotobacter/ Acetobacter* + *PSB*) + 50% RDF	81.00	20.00	17.45	12.00	9.73	87.27
T_8 Application of FYM/Compost @ 10 tonnes / ha + biofertilizer (*Azotobacter/ Acetobacter* + *PSB*) + 100% RDF	97.67	20.33	17.80	12.25	11.96	87.52
T_9 -Application of FYM/Compost @ 10 tonnes / ha + biofertilizer (*Azotobacter/ Acetobacter* + *PSB*) + soil test basis	98.20	20.35	17.81	12.26	12.10	87.48
SEm ±	4.85	0.49	0.51	0.38	0.74	0.41
CD (P=0.05)	14.70	1.49	1.54	1.14	2.24	1.25
CV	9.35	4.37	5.18	5.58	12.18	0.82

Table: AS 68.4: Effect of integrated application of organics and inorganics on soil properties and nutrient status of soil after completion of one year crop cycle 2014-15 at Kota.

Treatment	OC (%)	Soil pH	Ec (ds/m^2)	Bulk density (Mg/m^2)	Infiltration rate (mm/hr)	Nutrient status of soil (kg/ha) after harvest		
						N	P	K
T_1 - No organic + 50% RDF	0.47	8.21	0.32	1.42	3.80	275	14.40	275
T_2 - No organic + 100% RDF	0.46	8.22	0.35	1.43	3.90	287	16.70	299
T_3 - No organic + soil test based recommendation	0.48	8.20	0.33	1.41	3.90	290	16.90	295
T_4 – Application of FYM/Compost @ 20tonnes/ha +50%RDF(inorganic source)	0.53	8.15	0.31	1.37	4.60	322	24.40	313
T_5 -Application of FYM/Compost @ 20 tonnes / ha +100%RDF (inorganic source)	0.52	8.17	0.30	1.36	4.60	340	25.30	318
T_6 -Application of FYM/Compost @ 20 tonnes / ha + in organic nutrient application based on soil test (rating chart)	0.54	8.14	0.29	1.35	4.70	335	25.10	325
T_7 -Application of FYM/Compost @ 10 tonnes / ha + biofertilizer (*Azotobacter/ Acetobacter* + *PSB*) + 50% RDF	0.52	8.15	0.29	1.37	4.50	211	23.50	314
T_8 Application of FYM/Compost @ 10 tonnes / ha + biofertilizer (*Azotobacter/ Acetobacter* + *PSB*) + 100% RDF	0.51	8.16	0.28	1.38	4.60	333	24.70	320
T_9 -Application of FYM/Compost @ 10 tonnes / ha + biofertilizer (*Azotobacter/ Acetobacter* + *PSB*) + soil test basis	0.53	8.15	0.28	1.37	4.70	325	25.65	317
SEm ±	0.022	0.020	0.09	0.025	0.25	16.10	2.15	8.50
CD (P=0.05)	0.066	0.060	NS	0.071	0.73	47.15	6.40	24.70
CV	5.30	4.70	4.90	5.7	2.50	4.50	6.00	4.70
Initial	0.50	8.22	0.34	1.40	4.00	361	23.5	325

Table: AS 68.5: Cost and economics of integrated application of organics and in organics treatments during 2014-15 at Kota.

Treatment	Treatment cost (Rs/ha)	Production cost (Rs/ha)	Gross returns (Rs/ha)	Net returns (Rs/ha)	B: C ratio
T_1 - No organic + 50% RDF	3,4402	98,402	1,73,420	75,018	1.76
T_2 - No organic + 100% RDF	6,804	1,01,804	2,11,600	1,09,796	2.08
T_3 - No organic + soil test based recommendation	5,324	1,00,324	2,07,767	1,07,443	2.07
T_4 – Application of FYM/Compost @ 20tonnes/ha +50%RDF (inorganic source)	5,002	1,14,402	1,85,993	71,591	1.63
T_5 -Application of FYM/Compost @ 20 tonnes / ha +100%RDF (inorganic source)	8,404	1,17,804	2,18,500	1,00,696	1.85
T_6 -Application of FYM/Compost @ 20 tonnes / ha + in organic nutrient application based on soil test (rating chart)	6,924	1,16,324	2,24,020	1,07,696	1.93
T_7 -Application of FYM/Compost @ 10 tonnes / ha + biofertilizer (*Azotobacter/ Acetobacter* + *PSB*) + 50% RDF	6,078	1,08,278	1,86,300	78,022	1.72
T_8 Application of FYM/Compost @ 10 tonnes / ha + biofertilizer (*Azotobacter/ Acetobacter* + *PSB*) + 100% RDF	9,480	1,11,680	2,24,633	1,12,953	2.01
T_9 -Application of FYM/Compost @ 10 tonnes / ha + biofertilizer (*Azotobacter/ Acetobacter* + *PSB*) + soil test basis	8,000	1,10,200	2,25,860	1,15,660	2.05
SEm ±	-	-	11,149	11,149	0.11
CD (P=0.05)	-	-	33,815	33,815	0.33
CV	-	-	9.35	20	9.90

Common cost of cultivation: Rs 95,000 / ha **Cane price:** Rs 2300/ton

Rate of fertilizers (Rs / kg): Urea = 6, SSP =8, MOP =18, ZnSO4 = 40.70, FYM =800/ton, Bio-fertilizers each (Azotobacter and PSB) =75

FRONT LINE DEMONSTRATION (FLD) 2014-15

TECHNICAL REPORT OF THE FRONTLINE DEMONSTRATIONS OF SUGARCANE CONDUCTED BY AICRP ON SUGARCANE, KOTA CENTRE (2014-15)

1.	Name of the crop	:	Sugarcane
2.	Season	:	Spring (2014-15)
3.	Objective	:	Popularization of new cane variety and sustainable development of sugarcane based cropping system
4.	Name of the farmer	:	Sh. Nanad Lal Nagar
5.	location	:	Bhimpura, Teh,Digod Distt. Kota
6.	Area under demonstration	:	One hectare
7.	Irrigated / rainfed	:	Irrigated
8.	Category of beneficence		
	(a) Medium / small / marginal	:	Medium
	(b) SC/ST/OBC/General	:	OBC
9.	Rainfall pattern	:	Medium
10.	Field condition		
	(a) Topography	:	Plains
11.	Production technology adopted	:	
	(a) Variety	:	CoS-06247
	(b) Seed rate	:	75 q/ha
	(c) Source of seed	:	ARS, Ummedganj, Kota.
	(d) Seed treatment	:	0.05% carbendazim
	(e) Planting date	:	15.3.2014
	(f) Fertilizer		
	(i) Basal dose of N	:	50 N : 60 P_2O_5 : 40 K_2O ha^{-1}
	(ii) Top dressing in three splits	:	150 kg N as per recommendation
	(h) Weed control	:	Atrazine @ 2.0 kg ha /ha PE + Two hand weeding at 60 & 90 DAP

(i) Plant protection measures : Monocrotophos @ 1 lit./ha

12. Date of harvesting : 10..3. 2015

13. Estimate of yield (t/ha) :
(i) Improved Technology (IT) : 93.75 t/ha
(ii) Farmer Practice (FP) : 80. 50 t/ha
(iii) Per cent increase over local check : 14.41 %

14. Economics :

S. No.	Items	Cost of Cultivation (Rs/ha)	
		IT	FP
1.	Land preparation & ploughing	11500	10500
2.	Labor component (planting, earthing, and hand weeding etc.)	29000	29500
3.	**Input** Cane Seed	15000	13500
	Herbicide	1000	-
	Fertilizers	7500	6300
	Plant Protection	2500	1500
4.	Irrigation	15000	15000
5.	Harvesting	13000	13000
	Total cost of cultivation (Rs./ha)	**94,500**	**89, 300**
6.	Value of produced (Rs./ha)	2,15,625	1,85,150
7.	Net return (Rs./ha)	1,21,125	95,850
8.	B: C Ratio	2.28	2.07

* Selling price Rs. 2300 t/ha

15. **Farmers reaction :**

Farmers were quite satisfactory and impressed cane production. They had following reaction:

1. Sowing of three budded setts gave better and uniform germination over two or three piece of whole cane.
2. Sowing of setts if furrows with recommended spacing gave better plant population as compared to local ones.
3. Use of recommended varieties for the zone reduced the seed cost
4. Balanced fertilization of nutrients also reduced the input cost.
5. Use of seed treatment minimizes the disease infection
6. Use of herbicides for weed control reduce the total cost of cultivation
7. Control of shoot borer with prescribed insecticide at proper stage proved of assistance.

WEATHER PARAMETERS:

Period: January, 2014 to March, 2015

Std. Week No.	Period from - to	Temperature ^{0}C		Relative Humidity (%)	Rainfall (mm)	Rainy days
		Max.	Min.			
2	6-12 Jan 2014	18	7	94	2.6	-
3	13-19 Jan 2014	17	8	97	2.4	-
4	20-26 Jan 2014	19	11	99	46.2	2
5	27 Jan 2014-02 Feb2014	24	8	88	2.8	-
6	3-9 Feb2014	27	12	79	1.2	-
7	10-16 Feb2014	23	8	80	3.4	1
8	17-23 Feb2014	24	10	82	1.4	-
9	24 Feb2014-02 Mar.2014	25	12	92	33.8	3
10	03-09 march 2014	28	11	73	0.8	-
11	10-16 march 2014	28	11	73	-	-
12	17-23 march 2014	30	12	70	-	-
13	24-30 march 2014	32	13	70	-	-
14	31march 2014-06 April 2014	33	16	69	-	-
15	07-13 April 2014	34	18	65	-	-
16	14-20 April 2014	35	18	68	-	-
17	21-27 April 2014	38	19	60	-	-
18	28 April -04 May 2014	41	21	63	-	-
19	05 may 2014 - 11 May 2014	42	24	65	-	-
20	12 may 2014 - 18 May 2014	44	25	63	-	-
21	19 may 2014 - 25 May 2014	45	25	62	-	-
22	26 may 2014- 2 June 2014	43	26	65	-	-
23	3 June 2014 – 9 June2014	38.78	27.98	58	7.5	1
24	09-15 June	42.50	29.40	33.45	-	-
25	16-22 June	42.11	30.31	45.02	-	-
26	23-29 June	40.15	27.55	58.01	2.0	2
27	30 June-06 July	39.44	29.77	68.07	12.1	4
28	07-13 July	35.80	26.11	69.14	20.1	3
29	14-20 July	34.81	25.70	70.22	61.4	4
30	21-27 July	31.87	25.10	72.64	136.9	3
31	27 July-03 Aug.	32.91	26.73	77.65	170.1	4
32	04-10 Aug.	28.21	24.20	83.22	235	5
33	11-14 Aug.	30.27	25.36	81.01	78.8	2

34	18-24 Aug.	35.73	26.04	59.07	16.2	1
35	25-31 Aug.	35.56	25.71	66.65	1.0	0
36	01-07 Sept.	31.39	24.79	80.86	50.0	3
37	08-14 Sept.	32.01	24.14	59.22	-	-
38	15-21 Sept.	34.54	24.57	53.07	-	-
39	22-28 Sept.	35.44	24.16	41.72	-	-
40	29 Sept.-05 Oct.	36.63	25.53	42.86	-	-
41	06-12 Oct.	36.61	23.39	52.07	-	-
42	13-19 Oct.	33.63	21.03	34.79	-	-
43	20-26 Oct.	35.41	20.67	43.29	-	-
44	27 Oct.-02 Nov.	33.14	20.77	57.14	-	-
45	03-09 Nov.	32.90	18.11	51.22	-	-
46	10-16 Nov.	30.81	17.14	67.52	-	-
47	17-23 Nov.	29.66	16.40	60.12	-	-
48	24-30 Nov.	28.11	17.44	58.64	-	-
49	01-07 Dec.	28.97	9.79	61.57	-	-
50	08-14 Dec.	25.46	10.41	73.29	-	-
51	15-21 Dec.	19.79	5.71	63.64	-	-
52	22-28 Dec.2014	22.27	4.43	65.63	6.0	2
01	29 Dec.-04 Jan.2015	17.90	7.94	66.79	-	-
02	05-11 Jan.2015	22.70	6.64	76.29	-	-
03	12-18 Jan.	20.50	6.29	80.64	14.8	2
04	19-25 Jan.	20.04	8.94	71.00	2.0	1
05	26 Jan.-01 Feb.	18.61	6.00	74.86	-	-
06	02-08 Feb.	23.83	8.07	66.86	-	-
07	09-15 Feb.	25.86	9.99	62.21	-	-
08	16-22 Feb.	30.67	13.50	60.93	2.0	1
09	23 Feb.-01 March 2015	28.40	13.36	60.20	-	-
10	03-09 march 2015	28	12	60	0.8	-
11	10-16 march 2015	28	13	65	-	-
12	17-23 march 2015	30	11	62	-	-
13	24-30 march 2015	25	10	70	15	2