ANNUAL REPORT

CROP PRODUCTION

(Year 2013-2014)

Expt. No. AS 42 /Sugarcane/Agronomy/Kota/2013-14/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	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 – CoH-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: 10.03.2012; IInd year: 14.3.2013
(ix)	Date of Harvesting	:	15.02.2013 17.02.2014

6. 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

7. Results:

The experiments crop was planted on 10.03.2012 & 14.03.2013 and harvested on 15.02.2013 & 15.02.2014.The experiment consisted of 4 genotypes viz; Co-06033, CoLK-07201, CoH-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 CoH-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 CoH-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 CoH-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 CoH-06247 recorded significantly higher tiller count, cane length, millable cane and cane yield over other genotypes and at par with Co-06033. Cane variety CoH-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. Sucrose content, CCS (%) and CCS yield did not significant differs in among genotypes being higher in CoPK-05191 followed by CoH-06247, Co-06033 and CoLK-07201. 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.

Increasing fertilizer dose from 75 to 125% RDF of recommended did not influence germination, cane length and single cane weight. However, tiller count, millable cane and cane yield increased significantly upto 100% of recommended NPK fertilizer. Cane quality remained unaffected under different fertility levels. Interaction between genotypes and fertility levels were found non significant during 2013-14.

8. Summary: Among genotypes CoH-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 both the years.

9. Significant findings: This is the second year of the experiment

10. 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
CoH-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 (000ha)	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
CoH-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

Expt. No. AS 64 /Sugarcane/Agronomy/Kota/2013-14/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 and 15.3.2013
(ix)	Date of Harvesting	:	15.2.2012, 16.02.2013 and 15.2.2014

(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:

Field experiments were planted on 5th March, 2011, 10th March, 2012 and 15th March, 2013 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, 6, 7), 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 (320, 23.90, 248.87 and 12.30 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,T_2, T_3,T_{10} and T_{11} except rest and sulphur in T_1,T_2, T_3,T_7 and T_8 except rest of the treatments. Available Zn,Fe and Mn were found highest in T_6(0.60 mg/kg), T_7 (20.16 mg/kg), and T_6 (28.15 mg/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 64.8).

Data presented in Table AS 64.9 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).

9. Summary: Application of NPK+Zn +S (200+60+40+40+5 kg/ha) was found suitable increasing cane yield and CCS which was significantly superior to control, N, NP, NPK,FYM treatments ,soil test based fertilizer application and NPK +Mn and at par with rest of the treatments on the basis of pooled analysis of three years.

10. Significant findings: Application of NPK+Zn +S (200+60+40+40+5 kg/ha) found significantly superior in respect of cane (91.70 t/ha) and CCS (11.96 t/ha) yield over control, N, NP, NPK, FYM treatments, soil test based fertilizer application and NPK +Mn and at par with rest of the treatments.

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 germination, tillers in consecutive years ((2011-12,2012- 13 and 2013-14) at Kota.

Treatment	Germination (%) at 35 DAP				Tillers population (000/ha)						
					90 DAP			120 DAP			
	2011-12	2012-13	2013-14	Pooled	2011-12	2012-13	2013-14	2011-12	2012-13	2013-14	Pooled
T1 – Control (No fertilizer)	34.4	33.90	36.40	34.90	134.20	107.10	110.27	147.70	127.20	126.53	133.81
T2 – N	37.30	42.10	42.37	40.59	149.80	130.50	133.23	159.20	141.80	145.20	148.73
T3 – NP	37.60	42.60	42.50	40.90	152.80	136.40	140.63	163.70	150.70	150.07	154.82
T4 - NPK	37.00	42.50	42.73	40.74	154.90	136.60	143.73	161.50	152.40	150.80	15490
T5 – NPK+S	38.70	44.50	45.50	42.90	154.20	139.30	145.50	162.10	156.60	155.67	158.12
T6 – NPK+Zn	38.80	45.30	45.63	43.24	149.90	147.20	147.50	158.40	174.80	154.73	162.64
T7 – NPK+Fe	38.40	43.70	45.70	42.60	160.00	144.50	146.27	167.20	168.10	155.10	163.47
T8 – NPK+Mn	39.50	43.80	44.30	42.53	153.20	138.40	142.27	165.30	156.00	150.53	157.28
T9 – NPK+S+Zn	37.60	49.20	51.00	45.93	149.60	165.90	163.53	158.20	187.80	176.87	174.29
T10 - NPK+S+Zn+Fe	41.50	47.50	51.17	46.72	149.40	163.60	162.23	159.10	184.60	175.20	172.97
T11 - NPK+S+Zn+Fe+Mn	37.20	48.20	49.73	45.04	159.20	161.80	155.00	165.20	180.40	170.40	172.00
T12 -Soil test based fertilizer application	39.60	40.40	45.37	41.79	153.20	143.50	140.37	155.20	163.20	157.00	158.47
T13- FYM @ 20 t/ha	-	35.60	37.77	36.69	-	138.80	138.50	-	158.60	153.63	156.12
SEm ±	1.75	1.52	1.45	1.33	4.87	4.92	4.97	3.39	3.40	5.20	3.39
CD at 5%	NS	4.60	4.39	3.70	14.7	14.7	15.06	10.24	10.25	15.76	9.39

Table: AS 64.5: Effect of different plant nutrients on cane length, cane girth and NMC in sugarcane in 3 consecutive years (2011-12,2012-13 and 2013-14) at Kota.

Treatment	Cane length (cm)				Cane girth (cm)				NMC (000/ha)			
	2011-12	2012-13	2013-14	Pooled	2011-12	2012-13	2013-14	Pooled	2011-12	2012-13	2013-14	Pooled
T1 – Control (No fertilizer)	185.70	172.80	177.60	178.70	7.00	8.10	6.67	7.26	108.90	99.60	95.07	101.19
T2 – N	198.10	207.40	216.77	207.42	8.40	9.70	7.80	8.63	118.40	110.10	113.83	114.11
T3 – NP	204.20	215.50	221.80	213.83	8.50	9.80	8.07	8.79	118.70	111.60	115.37	115.22
T4 - NPK	212.00	221.00	232.37	221.79	9.50	10.90	8.40	9.60	122.50	113.70	117.13	117.78
T5 – NPK+S	211.30	222.30	240.03	224.54	9.60	11.00	8.57	9.72	120.20	115.60	120.23	118.68
T6 – NPK+Zn	205.90	223.10	242.40	223.80	9.30	10.70	8.00	9.33	117.30	114.20	117.70	116.40
T7 – NPK+Fe	223.00	221.30	243.00	229.10	9.80	11.30	8.60	9.90	121.50	116.20	118.07	118.59
T8 – NPK+Mn	202.20	226.50	248.57	225.76	9.60	11.00	8.50	9.70	118.30	112.10	115.63	115.34
T9 – NPK+S+Zn	225.90	244.60	262.00	244.17	9.80	11.30	9.40	10.17	126.80	124.20	127.20	126.06
T10 - NPK+S+Zn+Fe	201.10	225.60	264.43	230.38	9.10	10.50	9.00	9.53	113.40	116.60	123.63	117.88
T11 - NPK+S+Zn+Fe+Mn	223.20	234.60	256.43	238.07	9.50	10.90	8.47	9.62	107.80	111.60	119.57	112.99
T12 - Soil test based fertilizer application	214.20	207.10	242.00	221.10	9.40	10.60	8.90	9.63	116.30	106.20	108.47	110.32
T13- FYM @ 20 t/ha	-	180.80	196.67	188.74	-	8.70	6.73	7.72	-	103.50	99.80	101.65
SEm ±	4.36	14.65	9.42	8.33	0.26	0.30	0.53	0.32	2.87	5.61	4.96	3.94
CD at 5%	13.2	44.40	28.57	23.10	0.80	0.9	1.60	0.86	8.7	17.0	15.04	10.92

Table: AS 64.6: Effect of different plant nutrients on cane yield and CCS yield in sugarcane in 3 consecutive years (2011-12, 2012-13 and 2013-14) at Kota.

Treatment	Cane yield (t/ha)				CCS (%)				CCS (t/ha)			
	2011-12	2012-13	2013-14	Pooled	2011-12	2012-13	2013-14	Pooled	2011-12	2012-13	2013-14	Pooled
T1 – Control (No fertilizer)	50.67	58.40	65.27	58.11	11.94	12.53	11.67	12.05	6.04	7.32	7.62	6.99
T2 – N	67.00	75.10	80.33	74.14	12.86	13.50	12.36	12.91	8.60	10.12	9.93	9.55
T3 – NP	72.00	79.80	81.63	77.81	12.15	12.75	12.10	12.33	8.74	10.17	9.87	9.59
T4 - NPK	77.67	80.40	83.00	80.36	12.26	12.87	13.16	12.76	9.52	10.26	10.93	10.24
T5 – NPK+S	78.30	87.30	88.57	84.72	12.92	13.56	13.12	13.20	10.12	11.83	11.62	11.19
T6 – NPK+Zn	78.67	88.90	89.53	85.70	13.17	13.82	13.06	13.35	10.78	10.27	11.69	10.91
T7 – NPK+Fe	77.33	88.30	88.93	84.85	13.45	12.18	13.14	12.92	10.40	10.75	11.68	10.94
T8 – NPK+Mn	73.00	81.80	84.37	79.46	12.83	13.47	13.14	13.15	9.36	11.01	11.08	10.48
T9 – NPK+S+Zn	82.46	95.30	97.33	91.70	11.60	14.18	13.22	13.00	9.56	13.46	12.86	11.96
T10 - NPK+S+Zn+Fe	78.45	91.60	94.50	88.18	12.13	12.73	13.16	12.67	9.51	11.51	12.44	11.15
T11 - NPK+S+Zn+Fe+Mn	81.33	91.50	93.20	88.70	11.92	12.51	13.15	12.53	9.69	11.46	12.25	11.13
T12-Soil test based fertilizer application	75.00	79.40	82.27	78.89	12.55	13.17	12.76	12.83	9.41	10.46	10.50	10.12
T13- FYM @ 20 t/ha	-	74.80	75.53	75.17	-	12.62	12.91	12.77	-	9.43	9.75	9.59
SEm	5.31	5.11	4.64	4.31	0.31	0.37	0.40	0.31	0.88	0.96	0.65	0.73
CD at 5%	16.08	15.50	14.08	11.96	0.95	1.12	1.20	0.87	2.68	2.90	1.96	2.02

Table: AS 64.7: 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)	75.00	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: AS 64.8: Effect of different plant nutrients on soil properties after completion of three year crop cycle (2011-12 to 2013-14) 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	8.00	0.30	252	15.50	207	6.50	0.40	14.15	20.70
T2 – N	0.46	8.07	0.32	305	18.45	217	7.40	0.42	15.10	22.32
T3 – NP	0.47	8.05	0.29	307	20.70	224	6.70	0.47	16.20	23.27
T4 - NPK	0.48	8.10	0.35	305	21.50	248	7.80	0.49	17.34	27.50
T5 – NPK+S	0.48	8.09	0.31	309	21.80	242	11.50	0.50	17.10	23.40
T6 – NPK+Zn	0.48	8.10	0.30	315	21.52	245	9.50	0.60	16.15	24.50
T7 – NPK+Fe	0.47	7.98	0.36	310	17.40	247	7.40	0.46	20.16	24.30
T8 – NPK+Mn	0.46	8.15	0.35	308	16.73	232	7.50	0.45	16.40	28.15
T9 – NPK+S+Zn	0.49	8.12	0.32	320	23.90	248.7	12.3	0.57	18.70	23.35
T10 - NPK+S+Zn+Fe	0.47	8.14	0.33	315	17.43	224.2	10.20	0.52	19.50	27.20
T11 - NPK+S+Zn+Fe+Mn	0.46	8.23	0.32	312	17.75	220	10.30	0.55	18.20	28.05
T12 - Soil test based fertilizer application	0.48	8.15	0.31	267	18.60	240	9.20	0.46	16.50	25.20
T13- FYM @ 20 t/ha	0.50	7.95	0.27	260	19.82	218	10.00	0.47	16.75	25.80
SEm ±	0.07	0.15	0.06	16.20	2.08	8.12	1.55	0.06	1.25	1.60
CD at 5%	NS	NS	NS	49.30	5.25	24.44	4.68	0.14	3.76	4.82
Initial	0.54	8.20	0.25	362	23.50	283	9.60	0.55	13.24	20.78

Table: AS 64.9: Cost and economics of different nutrient management treatments in sugarcane at Kota.

Treatment	Nutrient applied (kg/ha)							Treatment cost (Rs/ha)	Production cost (Rs/ha)	Gross returns (Rs/ha)	Net returns (Rs/ha)	B: C ratio
	N	P	K	S	Zn	Fe	Mn					
T1 – Control (No fertilizer)	0	0	0	0	0	0	0	0	93,500	1,30,540	37,040	1.40
T2 – N	200	-	-	-	-	-	-	2,640	96,140	1,60,660	64,520	1.67
T3 – NP	200	60	-	-	-	-	-	5,616	99,116	1,63,260	64,144	1.65
T4 - NPK	200	60	40	-	-	-	-	6,768	1,00,268	1,66,000	65,732	1.66
T5 – NPK+S	200	60	40	40	-	-	-	8,168	1,01,668	1,77,140	75,472	1.74
T6 – NPK+Zn	200	60	40	-	5	-	-	7,786	1,01,286	1,79,060	77,774	1.77
T7 – NPK+Fe	200	60	40	-	-	1	-	7,768	1,01,268	1,77,860	76,592	1.76
T8 – NPK+Mn	200	60	40	-	-	-	1	7,568	1,01,068	1,68,740	67,672	1.67
T9 – NPK+S+Zn	200	60	40	40	5	-	-	10,186	1,03,686	1,94,660	90,974	1.88
T10 - NPK+S+Zn+Fe	200	60	40	40	5	1	-	11,186	1,04,686	1,89,000	84,314	1.81
T11 - NPK+S+Zn+Fe+Mn	200	60	40	40	5	1	1	12,086	1,05,586	1,86,400	80,814	1.77
T12 - Soil test based fertilizer application	150	50	-	25	4	-	-	6,149	99,642	1,64,540	64,898	1.65
T13- FYM @ 20 t/ha	100	50	-	-	-	-	-	16,000	1,09,500	1,51,060	41,560	1.38
SEm ±												
CD at 5%												

Common cost of cultivation: Rs 93,500 / ha Cane price: Rs 2000/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/2013-14/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
(ix)	Date of Harvesting	:	17.02.2013 20.02.2014

(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 and march13,2013 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 receded 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. Non- significantly difference was observed at 60 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 % 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. Tillers count was also higher in T_4 treatment which was significantly superior over T_1 treatment at 90,120 and 150 DAP stage of the crop growth. Non-significantly difference was observed at 60 DAP stage of the crop. Number of tillers, cane length, cane girth and millable cane also exhibited the same trend as the germination of cane buds obtained in different treatments. 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). The highest cane yield in these treatments was due to higher cane length, cane girth and NMC/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.

8. Summary: 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 germination percentage of T_4 was significantly higher over rest of the treatments except T_5 at 40DAP.

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

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).

FRONT LINE DEMONSTRATION (FLD) 2013-14

TECHNICAL REPORT OF THE FRONTLINE DEMONSTRATIONS OF SUGARCANE CONDUCTED BY AICRP ON SUGARCANE, KOTA CENTRE (2013-14)

1.	Name of the crop	:	Sugarcane
2.	Season	:	Spring (2013-14)
3.	Objective	:	Popularization of new cane variety and sustainable development of sugarcane based cropping system
4.	Name of the farmer	:	Sh. Ranjit Singh
5.	location	:	Mohida, Teh,kishanganj Distt. Baran
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	:	CoPK-05191
	(b) Seed rate	:	75 q/ha
	(c) Source of seed	:	ARS, Ummedganj, Kota.
	(d) Seed treatment	:	With 0.25 % Agal + 0.05% carbendazim
	(e) Planting date	:	20.3.2013
	(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 DAP
	(i) Plant protection measures	:	Monocrotophos @ 1 lit./ha
12.	Date of harvesting	:	12.3.2014

13. Estimate of yield (t/ha) :
(i) Improved Technology (IT) : 94.50 t/ha
(ii) Farmer Practice (FP) : 82.60 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	10500	10000
2.	Labor component (planting, earthing, and hand weeding etc.)	28500	28500
3.	**Input** Cane Seed	15000	13500
	Herbicide	1000	-
	Fertilizers	7200	5800
	Plant Protection	2500	1500
4.	Irrigation	15000	15000
5.	Harvesting	12500	12500
	Total cost of cultivation (Rs./ha)	**92,200**	**86, 800**
6.	Value of produced (Rs./ha)	1,89,000	1,65,200
7.	Net return (Rs./ha)	96,800	78,400
8.	B: C Ratio	2.04	1.90

* Selling price Rs. 2000 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, 2013 to March, 2014

Std. Week No.	Period from - to	Temperature ^{0}C		Relative Humidity (%)	Rainfall (mm)	Rainy days
		Max.	Min.			
5	27 Jan 2013-02 Feb2013	25	9	87	-	-
6	3-9 Feb2013	26	10	79	-	-
7	10-16 Feb2013	24	8	80	1.2	-
8	17-23 Feb2013	24	10	82	-	-
9	24 Feb2013-02 Mar.2013	25	12	80	-	-
10	03-09 march 2013	28	11	73	-	-
11	10-16 march 2013	28	11	73	-	-
12	17-23 march 2013	29	12	70	1.6	-
13	24-30 march 2013	32	13	70	-	-
14	31 march 2013 -06 April	33	16	69	-	-
15	07-13 April 2013	34	18	65	-	-
16	14-20 April 2013	34	18	68	-	-
17	21-27 April 2013	38	19	60	-	-
18	28 April -04 May 2013	41	21	63	-	-
19	05 may 2013 - 11 May 2013	42	24	65	-	-
20	12 may 2013 - 18 May 2013	44	25	63	-	-
21	19 may 2013 - 25 May 2013	45	25	62	-	-
22	26 may 2013- 2 June 2013	46	24	65	-	-
23	3 June 2013 – 9 June2013	38.78	27.98	58	7.5	1
24	10 June 2013 – 16 June 2013	36.13	27.71	61	17.8	1
25	17 June 2013 – 23 June 2013	32.64	26.71	79	101.2	6
26	24 June 2013 – 30 June 2013	32.00	26.13	83	30.0	2
27	31 June 2013 – 6 July 2013	32.10	25.80	83	65.6	5
28	7 July 2013 – 13 July 2013	31.20	25.50	90	216.4	5
29	14 July2013 – 20 July 2013	30.95	25.38	87	160.0	6
30	21July 2013 – 27 July 2013	29.28	24.94	90	87.0	6
31	28 July2013 – 03 Aug. 2013	31.98	25.85	81	51.5	3
32	04 Aug 2013 – 10 Aug 2013	30.51	25.27	84	78.3	4
33	11 Aug 2013 – 17 Aug 2013	32.68	25.30	73	5.0	1
34	18 Aug 2013 – 24 Aug	33.52	25.10	63	-	-
.35	25 Aug 2013 – 01 Sept 2013	36.84	26.42	53	-	-

36	02 Sept 2013 -08 Sept 2013	34.63	25.17	62	30.6	2
37	09 Sept 2013 -15 Sept 2013	32.54	24.90	79	75.5	2
38	16 Sept 2013- 22 Sept 2013	34.63	25.17	62	30.6	2
39	23 Sept 2013 -29 Sept 2013	32.54	24.90	79	75.5	2
40	30 Sept.- 6 Oct. 2013	31	23	98	85	4
41	7-13 Oct. 2013	32	22	98	107	2
42	14-20 Oct. 2013	34	22	76	0.2	-
43	21-27 Oct. 2013	33	17	73	0.2	-
44	28 Oct.- 3 Nov. 2013	33	17	69	0	-
45	4-10 Nov.2013	28	14	81	8.2	1
46	11-17 Nov.2013	27	11	76	0	-
47	18-24 Nov.2013	29	11	75	1.2	-
48	25- Nov.-01 Dec. 2013	29	11	72	1.2	-
49	2-8 Dec. 2013	28	11	72	0.6	-
50	9-15 Dec. 2013	25	10	70	0.8	-
51	16-22 Dec. 2013	23	9	99	1.8	-
52	23-29 Dec. 2013	19	8	92	6.6	1
1	30 Dec 2013-05 Jan 2014	17	11	99	27	2
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	-