

<b>1.</b>	<b>Title of the Project</b>	<b>AS 42 :Agronomic Evaluation</b>
<b>2.</b>	<b>Name of the Scientists</b>	Prof.D.M.Veer, Plant Pathologist Miss. K.B.Patil , Jr.Res.Asstt
<b>3.</b>	<b>Name of Experiment</b>	42 (A) Agronomic evaluation of promising sugarcane genotypes (Early Group).
<b>4.</b>	<b>Objectives of the Experiment</b>	i) To work out management of package of practices for sugarcane genotypes.
<b>5.</b>	<b>Experimental details</b>	Regional Sugarcane and Jaggery Research Station, Kolhapur, FRBD, 3, 6.5 X6.0 m, 25-12-2010, irrigated, medium soil, pH 6.7, E.C. (dSm <sup>-1</sup> ) 1.5, organic carbon (%) 1.55, Avail.N 216.36 kg ha <sup>-1</sup> , Avail. P 15.2 kg ha <sup>-1</sup> , Avail K 281.55 kg ha <sup>-1</sup>
<b>6.</b>	<b>Treatment details</b>	A) Sugarcane varieties : V1 - CoSnK 05103 V2 - Co 05002 V3 - CoSnk 05101 V4 - CoC 671  B) Fertilizer levels : (N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O kg ha <sup>-1</sup> ) F1 : 75 % (187.50:86.25:86.25kg ha <sup>-1</sup> ) F2 : 100 % (250:115:115 kg ha <sup>-1</sup> ) F3 :125 % (312.50:143.75:143.75 kg ha <sup>-1</sup> )

## **7. Results:**

### **7.1 Growth parameters:**

The data on growth parameters are presented in table 1 and 2.

#### **Genotypes:**

The growth parameters viz. germination and tillering ratio were affected significantly due to different genotypes. The genotype CoSnK 05103 showed significantly highest germination (76.63 %) followed by genotype CoSnK 05101 (74.10 %) over rest of the genotypes. While, the genotype Co 05002 showed significantly highest tillering ratio (3.69) over rest of the genotypes. The genotype CoSnK 05101 showed significantly higher NMC (110050 ha<sup>-1</sup>) followed by genotype CoSnK 05103 (107850 ha<sup>-1</sup>) over rest of the genotypes.

The genotype CoSnK 05103 recorded significantly highest millable height (311.78 cm) and total height (360.00 cm) over rest of the genotypes. Significantly highest girth (10.78 cm) was recorded by var. CoC 671, highest number of internode (21.72) recorded by the genotype Co 05002 and highest single cane weight (1.46 kg) was recorded by var. CoC 671.

#### **Fertilizer levels:**

All the growth parameters except millable height were not affected significantly due to fertilizer levels. Significantly highest millable height (305.83 cm) was observed by application of 125 % RD RD N:P<sub>2</sub>O<sub>5</sub>:K<sub>2</sub>O which was followed by application of 100 % RD N:P<sub>2</sub>O<sub>5</sub>:K<sub>2</sub>O (286.58 cm).

#### **Interaction effect:**

The Interaction effect between genotypes and fertilizer levels were found to be non-significant except millable height. The data of interaction effect on millable height presented in table 3. Significantly higher millable height (339.33 cm) recorded by the genotype CoSnK 05103 with application of 125 % RD N:P<sub>2</sub>O<sub>5</sub>:K<sub>2</sub>O which was on par with the genotype CoSnk 05101 with application of 125 % RD N:P<sub>2</sub>O<sub>5</sub>:K<sub>2</sub>O (314.00 cm)

## 7.2 Cane and CCS yield:

The data on Cane and CCS yield are presented in Table 4

### Genotypes:

The cane yield was influenced significantly due to different genotypes. The significantly highest cane yield recorded by genotype CoSnK 05101 (128.63 t ha<sup>-1</sup>) which was on par with the genotypes Co 05002 (123.11 t ha<sup>-1</sup>). While CCS yield was observed to be non-significant.

### Fertilizer levels:

The cane yield was influenced significantly due to different fertilizer levels. The fertilizer dose 125 % RD N:P<sub>2</sub>O<sub>5</sub>:K<sub>2</sub>O showed significantly higher cane yield (128.22 t ha<sup>-1</sup>) which was on par with the application 100 % RD N:P<sub>2</sub>O<sub>5</sub>:K<sub>2</sub>O (118.57 t ha<sup>-1</sup>). While CCS yield was observed to be non-significant.

### Interaction effect:

The interaction effects between genotypes and fertilizer levels were found to be non-significant.

## 7.3 Quality parameters;

The data on quality parameters viz. Brix, sucrose %, purity % and CCS % are presented in Table 5.

### Genotypes:

The quality parameters were significantly influenced by different genotypes except, purity percent. The check CoC 671 recorded significantly higher Brix, Sucrose and CCS percent (22.32, 20.90 % and 14.84 % respectively) over rest of the genotypes.

### Fertilizer levels and Interaction effect:

The quality parameters were found to be non-significant due to fertilizer levels as well as interaction effect.

### Conclusions:

1. Amongst the genotypes, CoSnk 05101 found superior in respect of cane and CCS yield followed by Co 05002.

**Table 1 : Mean data on growth parameters as affected by various treatments ( 2011-12 Season I)**

Sr. No.	Treatments Details	Growth parameters		
		Germination at 45 DAP (%)	T.R.	NMC ( 000'ha <sup>-1</sup> )
<b>A.</b>	<b>Varieties</b>			
	V1: CoSnK 05103	76.63	3.11	107.85
	V2: Co 05002	59.10	3.69	98.38
	V3 : CoSnk 05101	74.10	2.90	110.05
	V4: CoC 671	66.03	3.19	78.80
	S.E. <sub>±</sub>	2.61	0.12	5.30
	C.D. 0.05	7.64	0.34	15.56
<b>B</b>	<b>Fertilizer levels</b>			
	F <sub>1</sub> : 75 % RD N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O	70.28	3.14	92.63
	F <sub>2</sub> : 100 % RD N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O	66.58	3.26	104.73
	F <sub>3</sub> : 125 % RD N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O	70.05	3.28	98.95
	S.E. <sub>±</sub>	2.26	0.10	4.60
	C.D. 0.05	NS	NS	NS
	Interaction ( A x B )			
	S.E. <sub>±</sub>	4.51	0.20	9.19
	C.D. 0.05	NS	NS	NS
	C.V. %	11.33	10.67	16.11

**Table 2 : Mean data on growth parameters as affected by various treatments ( 2011-12 Season I)**

Sr. No.	Treatments Details	Growth parameters				
		Millable height (cm)	Total height (cm)	Girth (cm)	No. of internodes	Single cane weight (kg)
<b>A.</b>	<b>Varieties</b>					
	V1: CoSnK 05103	311.78	360.00	8.60	18.10	1.13
	V2: Co 05002	281.22	328.67	10.01	21.72	1.33
	V3 : CoSnk 05101	280.67	325.00	10.22	21.67	1.25
	V4: CoC 671	256.67	311.00	10.78	21.47	1.46
	S.E.±	7.85	9.51	0.32	0.75	0.05
	C.D. 0.05	23.02	27.88	0.95	2.18	0.15
<b>B</b>	<b>Fertilizer levels</b>					
	F <sub>1</sub> : 75 % RD N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O	255.25	320.00	9.73	20.50	1.24
	F <sub>2</sub> : 100 % RD N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O	286.58	328.33	9.96	20.05	1.31
	F <sub>3</sub> : 125 % RD N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O	305.83	345.17	10.03	21.67	1.33
	S.E.±	6.80	8.23	0.28	0.65	0.04
	C.D. 0.05	19.93	NS	NS	NS	NS
	Interaction ( A x B )					
	S.E.±	13.59	16.47	0.56	1.29	0.09
	C.D. 0.05	39.87	NS	NS	NS	NS
	C.V. %	8.33	8.61	9.80	10.77	11.68

**Table 3 : Mean data on of interaction effect on millable height (cm) as affected by various treatments ( 2011-12 Season I)**

Genotype	Fertilizer levels			Means
	75 % RD N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O	100 % RD N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O	125 % RD N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O	
V1: CoSnK 05103	304.67	291.33	<b>339.33</b>	<b>311.78</b>
V2: Co 05002	229.67	323.00	290.67	<b>281.11</b>
V3 : CoSnk 05101	240.33	287.67	314.00	<b>280.67</b>
V4: CoC 671	246.33	244.33	279.33	<b>256.67</b>
<b>Means</b>	<b>255.25</b>	<b>286.58</b>	<b>305.83</b>	<b>282.56</b>
S.E.±	<b>13.59</b>			
C.D. 0.05	<b>39.87</b>			
C.V. %	<b>8.33</b>			

**Table – 4: Mean cane and CCS yield (t ha<sup>-1</sup>) as affected by various treatments. (2011-12 I season).**

Treatment	Yield (t ha <sup>-1</sup> )	
	Cane	CCS
<b>Varieties</b>		
V1 - CoSnK 05103	113.06	15.79
V2 – Co 05002	123.11	16.73
V3 – CoSnk 05101	128.63	17.36
V4 – CoC 671	105.44	15.66
S.E. ±	5.04	0.76
C.D. at 0.05	14.79	NS
<b>Fertilizer levels</b>		
F <sub>1</sub> : 75 % RD N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O	105.90	15.17
F <sub>2</sub> : 100 % RD N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O	118.57	16.43
F <sub>3</sub> : 125 % RD N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O	128.22	17.56
S.E. ±	4.37	0.66
C.D. at 0.05	12.81	NS
<b>Interaction</b>		
S.E. ±	8.73	1.32
C.D. at 0.05	NS	NS
C.V. %	12.87	13.92

**Table 5 : Mean data on quality parameters as affected by various treatments (2011-12 Season I)**

Sr. No.	Treatments Details	Quality parameters			
		Brix	Sucrose %	Purity %	CCS %
<b>I.</b>	<b>A ) Genotypes</b>				
	V1: CoSnK 05103	21.10	19.66	93.19	13.93
	V2: Co 05002	20.99	19.38	92.32	13.67
	V3 : CoSnk 05101	20.76	18.96	91.35	13.32
	V4: CoC 671	22.32	20.90	93.64	14.84
	SE $\pm$	0.17	0.20	0.65	0.17
	CD 0.05	0.51	0.57	NS	0.49
<b>II.</b>	<b>B) Fertilizer levels</b>				
	F <sub>1</sub> : 75 % RD N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O	21.24	19.74	92.96	13.98
	F <sub>2</sub> : 100 % RD N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O	21.15	19.68	93.01	13.93
	F <sub>3</sub> : 125 % RD N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O	21.49	19.75	91.91	13.91
	SE $\pm$	0.15	0.17	0.56	0.14
	CD 0.05	NS	NS	NS	NS
<b>III.</b>	<b>Varieties X Fertilizer levels</b>				
	SE $\pm$	0.30	0.34	1.13	0.29
	CD 0.05	NS	NS	NS	NS
	C.V. %	2.44	2.96	2.11	3.58



1. **Title of the Project** AS 42 (B):Agronomic Evaluation
2. **Name of the Scientists** Prof.D.M.Veer, Plant Pathologist  
Miss. K.B.Patil , Jr.Res.Asstt
3. **Name of Experiment** AS: 42 (B) Agronomic evaluation of promising sugarcane genotypes (Midlate Group).
4. **Objectives of the Experiment** i) To work out management of package of practices for sugarcane genotypes.
5. **Experimental details** Regional Sugarcane and Jaggery Research Station, Kolhapur, FRBD, 3, 6.5 X6.0 m, 25-12-2010, irrigated, medium soil, pH 6.7, E.C. (dSm-1) 1.5, organic carbon (%) 1.55, Avail.N 216.36 kg ha<sup>-1</sup>, Avail. P 15.2 kg ha<sup>-1</sup>, Avail K 281.55 kg ha<sup>-1</sup>
6. **Treatment details**
  - A) Sugarcane varieties :
    - V1 - CoVSI 05122
    - V2 – Co 05007
    - V3 – CoSnk 05104
    - V4 - Co 99004
  - B) Fertilizer levels : (N:P<sub>2</sub>O<sub>5</sub> :K<sub>2</sub>O kg ha<sup>-1</sup> )
    - F1 : 75 % (187.50:86.25:86.25kg ha<sup>-1</sup> )
    - F2 : 100 % (250:115:115 kg ha<sup>-1</sup> )
    - F3 :125 % (312.50:143.75:143.75 kg ha<sup>-1</sup> )

## **7. Results:**

### **7.1 Growth parameters:**

The data on growth parameters are presented in table 1 and 2.

#### **Genotypes:**

The genotype Co 05007 showed significantly highest germination (77.91 %) over rest of the genotypes. The genotype CoVSI 05122 gave significantly highest tillering ratio (3.84) followed by the genotype Co 05007 (3.58). The genotype CoSnK 05104 recorded significantly higher NMC (96720 ha<sup>-1</sup>) followed by genotype Co 05007 (92170 ha<sup>-1</sup>).

The other growth parameters viz; total height, girth, number of internode and single cane weight statistically differed significantly. The genotype CoSnK 05104 recorded significantly highest total height (359.33 cm) followed by variety Co 99004 (347.11cm) and genotype Co 05007 (330.56 cm). Significantly highest cane girth (9.59 cm) was recorded by cultivar Co 99004 over the rest of genotypes. In case of number of internode, the genotype CoSnK 05104 showed highest value (22.5) which was on par with genotype CoVSI 05122 (22.12). The genotype CoVSI 05122 recorded significantly highest single cane weight (1.37 kg) which was on par with genotype CoSnK 05104 (1.33 kg).

#### **Fertilizer levels:**

All the growth parameters except germination per cent and single cane weight were observed to be non-significant. Significantly highest germination (72.08 %) was recorded by application of 100 % RD N:P2O5 :K2O which was followed by application of 125 % RD N:P2O5 :K2O (71.18 %). The fertilizer level of 125 % RD N:P2O5 :K2O recorded significantly highest single cane weight (1.42 kg) over the rest of fertilizer levels.

#### **Interaction effect:**

The Interaction effect between genotypes and fertilizer levels were found to be non-significant.

## 7.2 Cane and CCS yield:

The data on Cane and CCS yield are presented in Table 3.

### Genotypes:

The cane yield was influenced significantly due to different genotypes. The significantly highest cane yield (123.04 t ha<sup>-1</sup>) was recorded by genotype CoSnK 05104 which was followed by the genotype Co 05007 (112.06 t ha<sup>-1</sup>). While CCS yield was observed to be non-significant.

### Fertilizer levels:

The cane yield was influenced significantly due to different fertilizer levels. The fertilizer dose 125 % RD N:P<sub>2</sub>O<sub>5</sub>:K<sub>2</sub>O showed significantly highest cane yield (125.20 t ha<sup>-1</sup>) over the rest of fertilizer levels.

### Interaction effect:

The interaction effects between genotypes and fertilizer levels were found to be non-significant.

## 7.3 Quality parameters;

The data on quality parameters viz. Brix, sucrose %, purity % and CCS % are presented in Table 4.

### Genotypes:

The quality parameters were significantly influenced by different genotypes except, purity percent. The check Co 99004 recorded significantly highest Brix, sucrose and CCS percent (22.99, 21.35 % and 15.10 % respectively) over rest of the genotypes.

### Fertilizer levels and Interaction effect:

The quality parameters were found to be non-significant due to fertilizer levels as well as interaction effect.

### Conclusions:

1. Amongst the genotypes, CoSnk 05104 found superior in respect of cane yield followed by Co 05007.
2. The highest cane yield was recorded at 125 % RD N:P<sub>2</sub>O<sub>5</sub>:K<sub>2</sub>O.

**Table 1 : Mean data on growth parameters as affected by various treatments ( 2011-12 Season I)**

Sr. No.	Treatments Details	Growth parameters		
		Germination at 45 DAP (%)	T.R.	NMC ( 000 <sup>3</sup> ha <sup>-1</sup> )
<b>A.</b>	<b>Varieties</b>			
	V1 - CoVSI 05122	74.29	3.84	80.40
	V2 – Co 05007	77.91	3.58	92.17
	V3 – CoSnk 05104	65.90	3.26	96.72
	V4 - Co 99004	62.89	2.64	74.07
	S.E.±	1.09	0.10	4.41
	C.D. 0.05	3.19	0.30	12.94
<b>B</b>	<b>Fertilizer levels</b>			
	F <sub>1</sub> : 75 % RD N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O	67.49	3.45	85.55
	F <sub>2</sub> : 100 % RD N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O	72.08	3.22	83.37
	F <sub>3</sub> : 125 % RD N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O	71.18	3.32	88.60
	S.E.±	0.94	0.09	3.82
	C.D. 0.05	2.76	NS	NS
	Interaction ( A x B )			
	S.E.±	1.88	0.18	7.64
	C.D. 0.05	NS	NS	NS
	C.V. %	21.76	9.22	15.42

**Table 2 : Mean data on growth parameters as affected by various treatments ( 2011-12 Season I)**

Sr. No	Treatments Details	Growth parameters				
		Millable height (cm)	Total height (cm)	Girth (cm)	No. of internodes	Single cane weight (kg)
<b>A.</b>	<b>Varieties</b>					
	V1 - CoVSI 05122	266.33	318.89	8.92	22.12	1.37
	V2 – Co 05007	281.44	330.56	8.50	21.07	1.17
	V3 – CoSnk 05104	261.22	359.33	8.92	22.50	1.33
	V4 - Co 99004	276.56	347.11	9.59	21.31	1.24
	S.E.±	7.47	10.19	0.16	0.38	0.05
	C.D. 0.05	NS	29.89	0.46	1.13	0.14
<b>B</b>	<b>Fertilizer levels</b>					
	F <sub>1</sub> : 75 % RD N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O	272.33	339.83	8.82	22.05	1.14
	F <sub>2</sub> : 100 % RD N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O	268.33	337.17	8.94	21.36	1.28
	F <sub>3</sub> : 125 % RD N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O	273.50	339.92	9.19	21.84	1.42
	S.E.±	6.47	8.83	0.14	0.33	0.04
	C.D. 0.05	NS	NS	NS	NS	0.12
	Interaction ( A x B )					
	S.E.±	12.94	17.65	0.27	0.67	0.08
	C.D. 0.05	NS	NS	NS	NS	NS
	C.V. %	8.26	9.02	5.26	5.30	11.00

**Table – 3: Mean cane and CCS yield (t ha<sup>-1</sup>) as affected by various treatments. (2011-12 I season).**

Treatment	Yield (t ha <sup>-1</sup> )	
	Cane	CCS
<b>Varieties</b>		
V1 - CoVSI 05122	102.40	14.19
V2 – Co 05007	112.06	15.26
V3 – CoSnk 05104	123.04	16.10
V4 - Co 99004	98.90	14.80
S.E. ±	5.29	0.61
C.D. at 0.05	15.51	NS
<b>Fertilizer levels</b>		
F <sub>1</sub> : 75 % RD N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O	93.06	13.98
F <sub>2</sub> : 100 % RD N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O	109.05	15.60
F <sub>3</sub> : 125 % RD N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O	125.20	15.70
S.E. ±	4.58	0.53
C.D. at 0.05	13.44	NS
<b>Interaction</b>		
S.E. ±	9.16	1.05
C.D. at 0.05	NS	NS
C.V. %	14.55	12.05

Table 4 : Mean data on quality parameters as affected by various treatments (2011-12 Season I )

Sr. No.	Treatments Details	Quality parameters			
		Brix	Sucrose %	Purity %	CCS%
I.	<b>A ) Genotypes</b>				
	V1 - CoVSI 05122	20.99	19.51	93.01	13.81
	V2 – Co 05007	20.52	18.85	91.88	13.27
	V3 – CoSnk 05104	20.60	18.71	90.87	13.11
	V4 - Co 99004	22.99	21.35	92.85	15.10
	SE $\pm$	0.24	0.19	0.79	0.15
	CD 0.05	0.72	0.56	NS	0.45
II.	<b>B) Fertilizer levels</b>				
	F <sub>1</sub> : 75 % RD N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O	21.24	19.55	92.13	13.78
	F <sub>2</sub> : 100 % RD N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O	21.10	19.40	91.88	13.66
	F <sub>3</sub> : 125 % RD N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O	21.49	19.86	92.45	14.02
	SE $\pm$	0.21	0.16	0.68	0.13
	CD 0.05	NS	NS	NS	NS
III.	<b>Varieties X Fertilizer levels</b>				
	SE $\pm$	0.42	0.33	1.37	0.26
	CD 0.05	NS	NS	NS	NS
	C.V. %	3.44	2.90	2.57	3.30

<b>1. Title of the Project</b>	<b>Plant nutrition</b>
<b>2. Name of the Scientists</b>	Prof.D.M.Veer, Plant Pathologist Miss. K.B.Patil , Jr.Res.Asstt
<b>3. Name of Experiment</b>	AS-64 Response of sugarcane crop to different plant nutrients in varied agro-ecological situations
<b>4. Objectives of the Experiment</b>	i) To study differential response of sugarcane crop to different nutrients.
<b>5. Experimental details</b>	Regional Sugarcane and Jaggery Research Station, Kolhapur, RBD, 6m x 6.5m, Net – 6m x 5.5 m, 25-12-2010, irrigated, medium soil, pH 6.8, E.C. (dSm-1) 0.50, organic carbon (%) 1.66, Avail.N 218.16 kg ha <sup>-1</sup> , Avail. P 17.2 kg ha <sup>-1</sup> , Avail K 278.5 kg ha <sup>-1</sup>
<b>6. Treatment details</b>	<p><b>Sr.No. Treatment</b></p> <ol style="list-style-type: none"> <li>1. Control</li> <li>2. N</li> <li>3. N + P<sub>2</sub>O<sub>5</sub></li> <li>3. N:P<sub>2</sub>O<sub>5</sub>:K<sub>2</sub>O</li> <li>4. N:P<sub>2</sub>O<sub>5</sub>:K<sub>2</sub>O + S</li> <li>6. N:P<sub>2</sub>O<sub>5</sub>:K<sub>2</sub>O +Zn</li> <li>7. N:P<sub>2</sub>O<sub>5</sub>:K<sub>2</sub>O +Fe</li> <li>8. N:P<sub>2</sub>O<sub>5</sub>:K<sub>2</sub>O + Mn</li> <li>9. N:P<sub>2</sub>O<sub>5</sub>:K<sub>2</sub>O +S+ Zn</li> <li>10. N:P<sub>2</sub>O<sub>5</sub>:K<sub>2</sub>O +S+Zn+Fe</li> <li>11. N:P<sub>2</sub>O<sub>5</sub>:K<sub>2</sub>O +S+Zn+Fe+Mn</li> <li>12. Soil test based fertilizer application S : 60 kg/ha –elemental sulphur Zn: 50 kg ZnSO<sub>4</sub>/ha Fe: 20 kg FeSO<sub>4</sub>/ha Mn : 10 kg MnSO<sub>4</sub>/ha N, P, K as per recommendations</li> </ol>



**Results:****7.1 Growth parameters:**

The data on growth parameters are presented in Table 1 and 2. The growth parameters *viz*; germination, tillering ratio and NMC found to be non significant due to various treatments. While other growth parameters *viz*; millable height, total height, girth, number of internodes and single cane weight observed to be statistically significant.

The treatment T<sub>11</sub> (N:P<sub>2</sub>O<sub>5</sub>:K<sub>2</sub>O+S+Zn+Fe+Mn) recorded significantly highest millable height, total height, and single cane weight (297.33 cm, 353.33 cm, and 1.32 kg respectively) which was at par with treatment T<sub>10</sub> (N:P<sub>2</sub>O<sub>5</sub>:K<sub>2</sub>O+S+Zn+Fe), treatment T<sub>9</sub> (N:P<sub>2</sub>O<sub>5</sub>:K<sub>2</sub>O+S+Zn) and treatment T<sub>12</sub> (as per soil test.) The treatment T<sub>10</sub> (N:P<sub>2</sub>O<sub>5</sub>:K<sub>2</sub>O+S+Zn+Fe) recorded significantly highest girth (9.07 cm) which was at par with all the treatments except treatment T<sub>1</sub> i.e. control.

**Cane and CCS yield:**

The data on cane and CCS yield are presented in Table 3. The cane and CCS yield observed to be significant due to various treatments. The treatment T<sub>11</sub> (N:P<sub>2</sub>O<sub>5</sub>:K<sub>2</sub>O+S+Zn+Fe+Mn) gave significantly highest cane and CCS yield ( 123.32 and 18.73 t ha<sup>-1</sup>) followed by treatment T<sub>10</sub> (N:P<sub>2</sub>O<sub>5</sub>:K<sub>2</sub>O+S+Zn+Fe) (118.62 and 17.78 t ha<sup>-1</sup>), treatment T<sub>9</sub> (N:P<sub>2</sub>O<sub>5</sub>:K<sub>2</sub>O+S+Zn) ( 108.59 and 16.06 t ha<sup>-1</sup>) and treatment T<sub>12</sub> (as per soil test) ( 103.60 and 15.41 t ha<sup>-1</sup>)

**Quality parameters:**

The data on quality parameters *viz*: Brix, sucrose, purity and CCS percent are presented in Table 4.

The quality parameters were found to be non significant.

**Conclusion:**

Application of recommended dose of N:P<sub>2</sub>O<sub>5</sub>:K<sub>2</sub>O along with S + ZnSO<sub>4</sub> + FeSO<sub>4</sub> + MnSO<sub>4</sub> found to be superior in respect of cane and CCS yield, which was on par with application recommended dose of N:P<sub>2</sub>O<sub>5</sub>:K<sub>2</sub>O along with S + ZnSO<sub>4</sub> + FeSO<sub>4</sub>, and N:P<sub>2</sub>O<sub>5</sub>:K<sub>2</sub>O along with S + ZnSO<sub>4</sub>.

**Table 1: Mean data on growth parameters as affected by various treatments (2011-12)**

Tr. No	Treatments Details	Growth parameters		
		Germination (%) at 45 DAP	T.R.	NMC (000'ha <sup>-1</sup> )
1	Control	40.53	2.60	75.17
2	N	44.57	2.88	77.60
3	N + P <sub>2</sub> O <sub>5</sub>	45.59	2.93	81.74
4	N + P <sub>2</sub> O <sub>5</sub> + K <sub>2</sub> O	46.96	2.92	94.66
5	N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O +S	50.38	3.01	93.54
6	N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O +Zn	41.11	2.91	95.89
7	N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O +Fe	43.04	2.91	95.93
8	N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O +Mn	43.17	2.92	100.18
9	N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O +S+Zn	45.67	3.06	87.18
10	N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O +S+Zn+Fe	45.67	3.11	90.98
11	N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O +S+Zn+Fe+Mn	53.67	3.37	93.77
12	Soil test based fertilizer application	51.17	3.14	86.55
	SE <sub>±</sub>	3.53	0.26	6.31
	CD 0.05	NS	NS	NS
	CV %	13.31	15.18	12.22

**Table 2: Mean data on growth parameters as affected by various treatments (2011-12)**

Tr. No	Treatments Details	Growth parameters				
		Millable height (cm)	Total height (cm)	Girth (cm)	No. of internodes	Single cane weight (kg)
1	Control	207.33	266.67	7.60	20.23	0.98
2	N	224.33	283.33	8.67	21.00	1.00
3	N + P <sub>2</sub> O <sub>5</sub>	244.33	304.33	8.97	20.87	1.08
4	N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O	246.67	305.67	8.67	19.53	1.07
5	N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O +S	250.33	309.00	8.93	19.80	1.08
6	N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O +Zn	253.	312.33	8.73	20.97	1.09
7	N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O +Fe	241.00	300.00	8.63	22.07	1.08
8	N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O + Mn	255.00	314.00	8.57	20.80	1.01
9	N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O + S+ Zn	272.67	330.00	8.77	22.60	1.25
10	N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O +S+Zn+Fe	268.33	325.67	9.07	21.33	1.31
11	N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O +S+Zn+Fe+Mn	297.33	353.33	8.73	21.00	1.32
12	Soil test based fertilizer application	260.00	318.00	8.43	21.37	1.21
	SE <sub>±</sub>	14.41	14.56	0.24	0.38	0.05
	CD 0.05	43.60	44.08	0.72	1.17	0.16
	CV %	9.91	8.13	4.78	3.18	8.41

**Table – 3: Mean cane and CCS yield (t ha<sup>-1</sup>) as affected by various treatments. (2011-12).**

Tr. No	Treatments Details	Yield (t ha <sup>-1</sup> )	
		Cane	CCS
1	Control	63.32	9.09
2	N	76.86	10.79
3	N + P <sub>2</sub> O <sub>5</sub>	88.19	12.61
4	N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O	98.23	13.95
5	N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O +S	104.76	15.64
6	N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O +Zn	104.43	14.67
7	N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O +Fe	102.41	15.33
8	N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O + Mn	101.02	14.94
9	N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O + S+ Zn	108.59	16.06
10	N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O +S+Zn+Fe	118.62	17.78
11	N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O +S+Zn+Fe+Mn	123.32	18.73
12	Soil test based fertilizer application	103.60	15.41
	SE <sub>±</sub>	6.77	1.30
	CD 0.05	20.49	3.94
	CV %	11.79	15.48

**Table 4 : Mean data on quality parameters as affected by various treatments (2011-12)**

Tr. No	Treatments Details	Quality parameters			
		Brix	Sucrose %	Purity %	CCS %
1	Control	21.12	20.09	95.19	14.36
2	N	21.12	19.75	93.57	14.02
3	N + P <sub>2</sub> O <sub>5</sub>	21.29	20.10	94.46	14.32
4	N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O	21.45	20.10	93.75	14.27
5	N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O +S	21.85	20.81	95.23	14.89
6	N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O +Zn	21.32	19.82	93.00	14.03
7	N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O +Fe	21.39	20.40	95.38	14.60
8	N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O + Mn	21.95	20.72	94.32	14.77
9	N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O + S+ Zn	22.00	20.86	94.71	14.90
10	N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O +S+Zn+Fe	22.12	21.00	94.90	15.00
11	N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O +S+Zn+Fe+Mn	22.14	21.14	95.48	15.14
12	Soil test based fertilizer application	21.98	20.77	94.48	14.81
	SE <sub>±</sub>	0.93	0.91	1.08	0.67
	CD 0.05	NS	NS	NS	NS
	CV %	0.62	7.22	1.98	7.98

**List of Publications – 2011-12****A) Research Article: 03**

1. B. S. Kadam, M.M. Suryavanshi, **D. M. Veer, K. B. Patil**, S.M.More and R.B.Khot (2011).Influence of weed management practices on cane yield and weed intensity of ratoon sugarcane (Co 86032). Cooperative sugar. 42 (7) : 41-46.
2. **D. M. Veer**, B. S. Kadam, **K. B. Patil**, M.M. Suryavanshi, and U.S. Kudtarkar. (2011) Effect of integrated nutrient management on sugarcane plant cane (preseasonal) and its Succeeding ratoon and sustainability of soil health in South Maharashtra.Cooperative Sugar.,42(8)53-60.

**B) Technical :01**

1. **K. B. Patil** , A.V. Gaikwad , S.V.Deshmukh, U.S.Kudtarkar , S.R. Patil(2011)  
Enzymatic Activities of Soil as Influenced by Application of Biomethanated Spentwash to Soybean on Inceptisol. abstract for National Seminar on “Developments in Soil Science-2011” held at University of Agricultural Sciences Dharwad on 16-19 November, 2011.

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**PART II**  
**TECHNICAL PROGRAMME**  
**2012-2013**

*All-India Co-ordinated Research Project on Sugarcane, Kolhapur.*

<b>ICAR Trials</b>		
Crop Improvement		
<b>Crop Production:</b>		
1.	AS 42	(A) Agronomic evaluation of promising sugarcane genotypes (Early Group)- Plant cane II.
2.	AS 42	(A) Agronomic evaluation of promising sugarcane genotypes (Early Group)- Ratoon.
3.	AS 42	(B) Agronomic evaluation of promising sugarcane Genotypes (Midlate Group) Plant cane II.
4	AS 42	(B) Agronomic evaluation of promising sugarcane Genotypes (Midlate Group) Ratoon.
5	AS 64	Response of sugarcane crop to different plant nutrients in varied agro- ecological situations. Plant Cane II.
<b>III) New Experiment :</b>		

1.	AS-63	Plant geometry in relation to mechanization in sugarcane.
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