

## **Experiment: AS 42**

### **Agronomical evaluation of promising sugarcane genotypes**

Ratoon experiment consisting three genotypes viz., CoS 8272, CoS 7250 and CoS 01424 and three fertility levels i.e. 75% N (112.5 kg/ha), 100% N (150 kg/ha), and 125% of the recommended dose of nitrogen (187.5 kg/ha) was conducted in spring planted cane in randomized block design (RBD) with three replications. The experimental soil was sandy loam in texture, low in organic carbon (0.36%), low in phosphorus (11.43 kg/ha) and medium in potassium (124.0 kg/ha) with 7.7 pH. Ratoon crop was initiated after harvesting of spring planted cane on 25-02-2012 and ratoon crop was harvested on 11-02-2013.

Experimental data presented in table-1 showed that genotypes CoSe 01424 gave significantly higher ratoon cane yield (66.30 t/ha) than that of genotype CoS 8272 and it was followed by genotype CoS 7250. CCS % in cane was found significantly higher in genotype CoS 8272 than that of CoS 7250 and CoSe 01424. In case of nitrogen levels 125% of the recommended dose of nitrogen produced significantly higher cane yield of 68.52 t/ha than that of 75% recommended dose of nitrogen and it was at par with 100% of recommended nitrogen. CCS % in cane was not affected significantly with different nitrogen level

### **Summary**

Genotype CoSe 01424 produced significantly higher ratoon cane yield of 66.30 t/ha followed by CoS 7250 with cane yield of 64.81 t/ha. CCS percent in cane was found significantly higher in genotype CoS 8272 as compared to CoS 7250 and CoSe 01424. In case of nitrogen levels significantly higher ratoon cane yield (68.52 t/ha) was obtained with 125% of the recommended dose of nitrogen and it was at par with 100% recommended N.

## **Experiment: AS-64**

### **Response of sugarcane crop to different plant nutrients in varied agroecological situation**

To study differential response of sugarcane crop to different nutrients, a field experiment consisting 12 treatments was carried out in randomized block design (RBD) with three replications. The experimental soil was sandy loam in texture, low in organic carbon (0.36%), low in available phosphorus (11.43 kg/ha) and medium in potassium (124 kg/ha) with 7.7 pH. Available S, Zn, Fe and Mn content of soil were 15.0, 0.64, 9.0 and 7.0 ppm, respectively. The experimental crop was planted on 25.02.2012 and harvested on 15.03.2013. Soil test based fertilizer recommendation was 178 kg N + 60 P<sub>2</sub>O<sub>5</sub> + 40 kg K<sub>2</sub>O along with composted pressmud cake @ 20 t/ha.

Experimental data given in table-2 revealed that different plant nutrient treatments significantly influenced the cane yield. Application of NPK +S +Zn+Fe+Mn gave the highest cane yield of 89.93 t/ha and it was at par with application of N.P.K. along with S, Zn, Fe and Mn alone or in combination and soil test basis fertilizer used treatment. Application of N, NP and NPK resulted significantly higher cane yield than that of control treatment (66.55 t/ha). CCS percent in cane was not affected significantly with use of different plant nutrients.

### **Summary**

Application of NPK + S+Zn+Fe+Mn produced significantly higher cane yield (89.93t/ha) than that of N, NP, NPK and control treatment. Plant nutrients did not influence CCS percent in cane.

## **Experiment AS-66**

### **Priming of cane node for accelerating germination**

To find out suitable cane node priming technique and to assess the effect of cane node on acceleration of germination an experiment composing, six treatments was conducted in randomized block design (RBD) with four replications. The experimental field was sandy loam in texture, low in organic carbon (0.36%), low in phosphorous (11.43 kg/ha) and medium in potassium (124 kg/ha) with 7.7 soil pH. The experimental crop was planted on 01.03.2012 and harvested on 18.03.2013.

Experimental data presented in table-3 indicated that priming cane node with cattle dung , cattle urine and water in 1:2:5 ratio resulted significantly higher germination, shoots, millable canes and cane yield than that of other treatments except treating cane node in hot water (50<sup>0</sup>C) and urea solution (3%) for two hours. Maximum cane yield of 97.68 t/ha was obtained in priming cane node with cattle dung, urine and water followed by treating cane node in hot water (50<sup>0</sup>C) and urea solution (3%) for two hours with cane yield of 92.59 t/ha. CCS % in cane was found more or less similar under different treatments.

### **Summary**

Priming of cane node with cattle dung, cattle urine and water produced significantly higher cane yield of 97.68 t/ha and it was followed by treating cane node in hot water (50<sup>0</sup>C) and urea solution (3%) for two hours with cane yield of 92.59 t/ha.

**Table-1 : Effect of treatments on stubbles, mother shoots, shoots, millable canes, cane yield and CCS % of ratoon cane (2012-13)**

Treatments	Stubbles (000/ha)	M. shoots (000/ha)	Shoots (000/ha)	NMC (000/ha)	Yield (t/ha)	CCS (%)
<b>(A) Varieties</b>						
V1-CoS 08287	25.86	66.91	256.576	163.751	59.34	11.43
V2- CoS 07250	26.90	70.60	267.455	172.686	64.81	10.54
V3- CoSe 01434	29.35	78.71	294.123	179.630	66.30	10.41
<b>SE±</b>	<b>1.43</b>	<b>1.56</b>	<b>2.45</b>	<b>2.69</b>	<b>2.06</b>	<b>0.10</b>
<b>CD 5%</b>	<b>3.04</b>	<b>3.32</b>	<b>5.23</b>	<b>5.74</b>	<b>4.38</b>	<b>0.21</b>
<b>(B) Nitrogen levels</b>						
F1-75% Recommended dose of N	26.62	68.66	246.159	167.779	57.09	10.93
F2- 100% Recommended dose of N	27.45	73.19	276.113	172.825	64.85	10.88
F3-125% Recommended dose of N	28.04	74.54	295.882	175.464	68.52	10.74
<b>SE ±</b>	<b>1.43</b>	<b>1.56</b>	<b>2.45</b>	<b>2.69</b>	<b>2.06</b>	<b>0.10</b>
<b>CD 5%</b>	<b>NS</b>	<b>3.32</b>	<b>5.23</b>	<b>5.74</b>	<b>4.38</b>	<b>NS</b>

**Table-2: Effect of treatments on germination, shoots, millable canes, cane yield and CCS % (2012-13)**

Treatments	Ger. %	Shoots (000/ha)			NMC (000/ha)	Yield (t/ha)	CCS %
		120 DAP	150 DAP	180 DAP			
Control (No fertilizer)	41.17	136.57	146.41	144.44	98.72	66.55	11.07
N	40.97	153.23	166.54	164.58	109.14	75.00	11.15
NP	42.46	162.03	175.34	172.45	114.11	79.28	11.16
NPK	41.96	165.85	180.32	178.58	119.09	82.18	11.19
NPK +S	41.67	169.90	183.44	181.71	121.06	84.38	11.20
NPK +Zn	41.86	172.22	185.87	182.86	121.64	85.88	11.30
NPK + Fe	42.26	169.32	183.91	182.05	120.36	84.72	11.36
NPK + Mn	40.56	168.17	181.48	179.74	119.55	83.45	11.35
NPK +S + Zn	41.86	167.24	188.42	185.76	124.42	88.19	11.36
NPK +S + Zn + Fe	42.16	177.42	187.49	186.45	125.11	88.89	11.36
NPK +S + Zn + Fe + Mn	41.76	183.33	191.43	188.54	126.04	89.93	11.52
Soil test based fertilizer application	41.17	175.23	185.91	182.40	121.64	85.53	11.43
<b>SE ±</b>	<b>1.55</b>	<b>4.29</b>	<b>4.51</b>	<b>4.93</b>	<b>3.63</b>	<b>2.20</b>	<b>0.15</b>
<b>CD (5%)</b>	<b>NIL</b>	<b>8.89</b>	<b>9.36</b>	<b>10.23</b>	<b>7.53</b>	<b>4.57</b>	<b>NS</b>

**Table-3: Effect of treatments on germination, shoots, millable canes, cane yield and CCS% (2012-13)**

<b>Treatments</b>	<b>Germination (%)</b>	<b>Shoot (000/ha)</b>	<b>NMC (000/ha)</b>	<b>Yield (t/ha)</b>	<b>CCS (%)</b>
T <sub>1</sub> - Unprimed cane node	30.31	169.67	113.19	80.79	11.91
T <sub>2</sub> - Treating cane node in hot water in 50 <sup>0</sup> C for 2 hrs.	33.20	181.01	108.45	78.36	11.78
T <sub>3</sub> - Treating cane node in hot water in 50 <sup>0</sup> C urea solution (3%) for 2 hrs.	35.23	188.30	131.37	92.59	11.71
T <sub>4</sub> - Priming cane node with cattle dung, cattle urine and water in 1:2:5 ratio.	38.20	192.02	137.27	97.68	11.78
T <sub>5</sub> - Conventional 03 bud sett planting.	27.18	163.31	109.61	76.85	12.00
T <sub>6</sub> - Primed and sprouted cane node incubated for four days after priming.	28.20	160.18	124.19	89.12	11.80
<b>SE ±</b>	<b>0.77</b>	<b>3.57</b>	<b>2.52</b>	<b>3.39</b>	<b>0.10</b>
<b>CD</b>	<b>1.72</b>	<b>7.96</b>	<b>5.37</b>	<b>7.218</b>	<b>NS</b>

