**Annual report 2013-14**

Crop Production

All India Coordinated Research Project (Sugarcane)

(NORTH CENTRAL ZONE)

G. S. Sugarcane Breeding and Research Institute

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**Project No. AS 42**

Title : Agronomical evaluation of promising sugarcane genotype

Objective: To work out agronomy of sugarcane varieties from advanced varietal trial.

**(A)Varieties :**

1-CoSe 011451 - early

2-CoSe 011453 -Midlate

3-CoSe 011454 -Midlate

(**B)Fertilizer Level:**

1- 75% of Recommended dose of N P K

2- 100% of Recommended dose of N P K

3- 125% of Recommended dose of N P K

( Recommended dose of N P K are 180-60-40 kg/ha in spring season)

Design: R.B.D. with three replication

Plot Size : 7x5.4 m2

The experimental soil was low in organic corbon ( 0.35 %) and available phosphorus ( 17.50 kg/ha) and medium in potash (104.0 kg/ha) with pH 8.40. The experiment was planted on October 17,2012 and harvested on march 10,2014.

The data( table-01) showed that higher no. of millable cane and cane yield were found in variety CoSe 11453 than that of CoSe 11451 and CoSe 11454. Application of 125 % Recommended dose of N PK K gave higher cane yield than 75% and 100% recommended dose of N P K

**Summary**

Variety CoSe 11453 produced higher number of millable canes and cane yield as compared to CoSe 11451 and CoSe 11454 Cane yield increased with 125% recommend dose of N P K .

Project no.: AS-64

Title: Response of sugarcane crop to different plant nutrients in varied agroecological situations

Objective: To study differential response of sugarcane crop to different nutrients.

Treatments:

| | |
|---|---|
| T1- Control | T7-NPK+Fe |
| T2-N | T8-N P K+Mn |
| T3- N P | T9-N P K +S+Zn |
| T4- N P K | T10-N P K+S+Zn+Fe |
| T5- N P K+S | T11-N P K+S+Zn+Fe+Mn |
| T6-N P K+Zn | T12-F.Y.M.@ 20 T/ha |

Design: R.B.D.

Replication: Three

Plot Size: 6x5.4 m2

Variety: CoSe 01434

The experiment soil was medium in organic ( 0.35%), low in available phosphorus ( 18.11 kg/ha ) and medium in potas (113 kg/ha) with pH-8.35 . The experiment was planted on March, 1,2013 and harvested on march 25,2014.

The experimental data (Table. 02) indicated that application of S,Zn,Fe and Mn along with NPK (T11) produced significantly higher number of shoots millable cane and cane yield than that of rest of the treatments.. Sucrose % in cane was not affected significantly with use of different plant nutrients.

**Summary**

Aplication of S,Zn, and Mn along with N P K (T11) gave significantly higher cane yield than other treatments except T9 and T10 treatments. Sucrose was not effected significantly with different treatments.

**Project: AS-66**

Title: Priming cane node for accelerating germination
Objective: 1- To find out suitable cane node priming technique
2- to asses the effect of cane node on acceleration of germination.
Plot Size : 6.00x5.40 m2
Variety : CoSe 08457
Treatments :

T1- Un primed Cane node
T2-Treating cane node in hot water (50 centgrade for 2 hours
T3- Treating cane node in hot water (50 centigrade in urea solution 3% for 2 hours
T4-Priming cane node with cattle dung, cattle urine and water 1:2:3 ratio.
T5-Conventional 3 buds sett planting.
T6-Primed and sprouted cane node ( incubated for 4 days after priming )

The experiment data were recorded and showed that low with unprimed cane node germination and highest germination was in T4 (priming cane node with cattle dung,cattle urine and water 1:2:3 ratio) treatments. Experiment was planted on March, 4,2013 and harvested on March ,24,2014.

The data ( table 03) also showed that significantly higher germination and canes yields was found in T4 treatments.

**Summary**

T4 treatment gave significantly higher cane yield than that other treatment except T6 and T3 treatments. Sucrose was not effected significantly with different treatments significantly.

**Project: As-68**

Title : Weed management in sugarcane with special reference to sedges
Objective: To find out the effect herbicides on weed in sugarcane with special reference to sedges.
Design: R.B.D.
Replication: Three
Plot Size : 6.00x5.4 m2
Treatments:

T1-Pre-emergence (PE) Atrazine @ 2.0 ai/ha
T2-Atrazine @ 2.0 ai/ha +halo sulfuron methyl at 75g ai/ha as tank mix as pre- emergence.
T3- Atrazine (PE) @ Fb EPOE halosulfuron methyl @ 75g ai/ha at 3-4 leaf stages of sedges.
T4-Atrazine @ 2.0 kg ai/ha Fb EPOE halosulfuron methyl @ 1.0 kg ai/ha at 60 DAP.
T5-PE Metyribuzin @ 1.0 kg ai/ha.
T6-EPOE Metribuzin @ 1.0 kg ai/ha + halosulfuron methyl @ 75g ai/ha as tank mix.

T7-PE Metribuzin @ 1.0 kg ai/ha+halosulfuron methyl @ 75g ai/ha at 2-4 leaf stages of sedges.
T8-PE Metribuzin @ 1.0 kg ai/ha Fb POE Ethoxysulfuron @ 60g ai/ha at 35-40 DAP
T9-PE Sulfentrazone @ 1200g ai/ha fb POE 2,4-D @ 1.0 Kg ai/ha at 60 DAP.
T10-PE Sulfentrazone @ 1200g ai/ha fb POE Almix @ 4.0 g ai/ha at 35-40 DAP.
T11-Three hand hoeing (30,60,90 DAP).
T12-Unweeded check.

**Summary**

On the basis of cane yield ,treatment T11 ( 87.350 MT/ha) gave highest cane yield followed by treatment T6(81.330 mt/ha) and T9 (80.870 mt/ha) where as sucrose content in juice highest in T8(17.05%) followed by T12(16.95 %) and T3(16.90).

**Table.01 :** Effected of treatments on germination,shoots,millable canes, cane yield and sucrose % of cane (2013-14)

| Treatments | Germination % | Shoots (,000/ha) | NMC (,000/ha) | CaneYield (T/ha) | Sucrose (%) |
|---|---|---|---|---|---|
| (A)varieties | | | | | |
| 01-CoSe 11451 | 38.15 | 183 | 138 | 77.74 | 16.73 |
| 02-CoSe 11453 | 42.86 | 195 | 143 | 87.83 | 17.11 |
| 03-CoSe 11454 | 36.87 | 176 | 142 | 82.05 | 16.41 |
| SE + | 1.03 | 3204 | 944 | 0.566 | 0.19 |
| CD(5%) | 2.13 | 6880 | 2001 | 1.214 | N.S. |
| (B) Fertilizer level | | | | | |
| 01.75 % reco. NPK | 38.76 | 170 | 140 | 81.83 | 16.52 |
| 02.100% recp.NPK | 37.99 | 189 | 141 | 82.28 | 16.79 |
| 03.125% reco,. NPK | 41.12 | 194 | 143 | 83.51 | 16.95 |
| S.E. | 1.03 | 3204 | 944 | 0566 | 0.19 |
| C.D. (5%) | N.S. | 6880 | N.S. | N.S. | N.S. |

**Table.02** : Effected of treatments on germination,shoots,millable canes, cane yield and sucros% of cane (2013-14)

| Treatments | Germination( %) | Shoots (,000/ha) | NMC(,000/ha) | Yield( M.T/ha) | Sucrose % |
|---|---|---|---|---|---|
| T1 | 47.21 | 127 | 104 | 64.35 | 17.16 |
| T2 | 46.35 | 139 | 112 | 65.43 | 16.63 |
| T3 | 45.77 | 126 | 115 | 67.44 | 17.70 |
| T4 | 46.12 | 160 | 126 | 69.75 | 17.62 |
| T5 | 46.81 | 163 | 124 | 66.82 | 17.01 |
| T6 | 47.61 | 145 | 121 | 65.74 | 17.60 |
| T7 | 47.84 | 139 | 117 | 65.43 | 17.89 |
| T8 | 47.38 | 162 | 129 | 69.91 | 18.05 |
| T9 | 46.12 | 163 | 131 | 72.08 | 17.38 |
| T10 | 47.61 | 169 | 133 | 72.99 | 17.59 |
| T11 | 46.46 | 174 | 136 | 74.07 | 17.72 |
| T12 | 47.15 | 138 | 113 | 58.95 | 17.59 |
| S.E.+ | 0.65 | 4.47 | 256 | 1.805 | 0.37 |
| C.D.(5%) | N.S. | 13.39 | 7.54 | 5.295 | N.S. |

**Table.03** : Effected of treatments on germination,shoots,millable canes, cane yield and sucrose % of cane (2013-14)

| Treatments | Germination (%) | Shoots(,000/ha) | NMC (,000/ha) | Yield( MT/ha) | Sucrose( %) |
|---|---|---|---|---|---|
| T1 | 44.29 | 139 | 107 | 58.95 | 16.10 |
| T2 | 49.71 | 144 | 114 | 63.04 | 15.66 |
| T3 | 51.52 | 149 | 117 | 64.59 | 16.00 |
| T4 | 53.80 | 145 | 115 | 66.67 | 15.65 |
| T5 | 45.36 | 143 | 113 | 62.43 | 15.98 |
| T6 | 52.13 | 139 | 112 | 61.58 | 15.90 |
| S.E. | 1.73 | 2.50 | 5.06 | 0.935 | 0.17 |
| C.D. | 5.24 | 7.58 | 5.06 | 2.845 | N.S. |

**Table.04** : Effected of treatments on germination,shoots,millable canes, cane yield and sucrose % of cane (2013-14)

| Treatments | Germination % | Shoots (,000/ha) | NMC (,000ha) | Yield( MT/ha) | Sucrose( %) |
|---|---|---|---|---|---|
| T1 | 43.85 | 91 | 82 | 60.97 | 16.68 |
| T2 | 44.20 | 100 | 90 | 67.45 | 16.40 |
| T3 | 40.96 | 101 | 92 | 68.37 | 16.90 |
| T4 | 32.62 | 115 | 106 | 78.67 | 16.39 |
| T5 | 45.12 | 114 | 105 | 77.98 | 16.73 |
| T6 | 44.31 | 122 | 112 | 81.33 | 16.69 |
| T7 | 39.89 | 103 | 95 | 70.69 | 16.72 |
| T8 | 44.19 | 106 | 96 | 73.46 | 17.05 |
| T9 | 35.40 | 118 | 109 | 80.87 | 16.80 |
| T10 | 40.61 | 104 | 97 | 71.84 | 16.63 |
| T11 | 39.57 | 126 | 117 | 87.35 | 16.83 |
| T12 | 41.19 | 99 | 92 | 68.49 | 16.95 |
| S.E. | 0.78 | 5.72 | 6.05 | 3.951 | 0.27 |
| C.D. | 2.35 | 15.78 | N.S. | 11.586 | N.S. |