

ANNUAL REPORT-2015-16 (AICRP)

Project No. AS-42

Title: Agronomic evaluation of promising sugarcane genotype

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

Treatments

A- Varieties

- 1-CoSe 11451 Early
- 2-CoSe 11453 Mid late
- 3-CoSe 11454 Mid late

B- Fertility Levels

- 1-75 per cent recommended dose of NPK
- 2-100 per cent recommended dose of NPK
- 3-125 per cent recommended dose of NPK

(Note: Recommended dose of NPK are 180:60:40 kg/ha, respectively)

Design: factorial R.B.D.

Replication: 3

Plot Size: 7.0 X 5.40 m²

Result

The experimental field was medium in organic carbon (0.50), medium in available phosphorus (17.73 kg/ha) and low in potash (99.65 kg/ha) with pH 8.02. Sugarcane crop was planted on 04 Feb. - 2015 and harvested on 15 March-2016. Effect of varieties on germination per cent, shoot population and cane yield were significantly higher in CoSe 11453 variety (45.29 per cent, 199.77 thousand/ha and 99.09 t/ha) as compared to CoSe 11451 (40.47 per cent, 187.66 thousand/ha and 89.89 t/ha) and CoSe 11454 variety (39.31 percent, 181.63 thousand/ha and 85.67 t/ha), respectively. Number of Millable Cane was recorded significantly higher in CoSe11453 (161.13 thousand/ha) but at par with CoSe 11451 (157.12 thousand/ha) variety. Sucrose per cent was not affected significantly with different varieties. 125 % recommended dose of fertilizer treatment was recorded significantly higher shoot population, NMC, cane yield and sucrose per cent as compared to 75 % recommended dose of fertilizer treatment but at par with 100% recommended dose of fertilizer treatment. Effect of fertility level on germination was found significantly higher in 125 % recommended dose of fertilizer treatment as compared to 75 % and 100% recommended dose of fertilizer treatments (Table AS-42).

Summary

Variety CoSe 11453 produced significantly higher germination, shoot population, number of millable cane and cane yield as compared to Varieties CoSe 11451 and CoSe 11454. Cane yield increased up to 125 % recommended dose of fertilizer.

Project No. AS-68

Title: Impact of integrated application of organics and inorganics in improving soil health and sugarcane productivity

Objective: To develop nutrient management strategy for sustaining soil health and sugarcane production

Treatments

T1-Application of trash at 10 tonnes/ha+ 50 per cent RDF

T2- Application of trash at 10 tonnes/ha+ 100 per cent RDF

T3- Application of trash at 10 tonnes/ha+ soil test basis (NPK application)

T4- Application of FYM @ 20 tonnes/ha+ 50 per cent RDF (Inorganic source)

T5- Application of FYM @ 20 tonnes/ha+ 100 per cent RDF (Inorganic source)

T6- Application of FYM @ 20 tonnes/ha+ Inorganic nutrient application based on soil test (NPK application)

T7- Application of FYM @ 10 tonnes/ha+ Bio-fertilizer (Azotobacter+PSB) + 50 per cent RDF

T8- Application of FYM @ 10 tonnes/ha+ Bio-fertilizer (Azotobacter+PSB) +100 per cent RDF

T9- Application of FYM/ @ 10 tonnes/ha+ Biofertilizer (Azotobacter+PSB) + soil test basis (NPK Application)

Design: R.B.D.

Replication: 3

Plot Size: 6X5.40 m²

Variety: CoSe 01434

Result

The experimental field was medium in organic carbon (0.57), medium in available phosphorus (18.30 kg/ha) and low in potash (102.29 kg/ha) with pH 8.34. Ratoon crop was started from 11 March - 2015 and harvested on 20 Feb-2016. Application of FYM@ 10 tonnes/ha+ Bio-fertilizers (Azotobacter+PSB)+ soil test basis (NPK Application) treatment resulted significantly higher clump (34.05 thousand /ha), shoot population(169.03 thousand /ha) and cane yield (77.37 t/ha) as compared to other treatments but at par with T8 treatment. NMC and sucrose per cent were not affected significantly with different treatments (Table AS68).

Summary

Application of FYM @ 10 tonnes/ha+ Bio-fertilizer (Azotobacter+PSB)+ soil test basis (NPK Application) was produced significantly higher cane yield. Sucrose percent was not affected significantly with different treatments.

Table AS-42: Effect of varieties and different fertility levels treatments on germination, Shoots, NMC, cane yield and sucrose per cent

Treatments	Germination %	Shoot (000/ha)	NMC (000/ha)	Cane Yield(t/ha)	Sucrose %
Varieties					
V1	40.47	187.66	157.12	89.89	18.80
V2	45.29	199.76	161.13	99.09	18.49
V3	39.31	181.63	144.19	85.67	18.15
SEm±	0.79	2.14	3.52	2.03	0.22
CD(P=0.05)	2.38	6.14	10.56	6.11	NS
Fertility levels					
F1	41.09	175.56	143.35	86.19	18.02
F2	40.43	194.13	156.20	91.97	18.54
F3	43.56	199.36	162.89	96.49	18.88
SEm±	0.79	2.14	3.52	2.03	0.22
CD(P=0.05)	2.38	6.14	10.56	6.11	0.68

Table-AS-68: Impact of integrated application of organics and inorganics fertilizers on sugarcane productivity

Treatments	Clump (000/ha)	Shoots (000/ha)	NMC (000/ha)	Cane Yield(t/ha)	Sucrose %
T1	26.23	131.89	98.04	59.46	17.65
T2	26.95	135.70	94.86	59.77	17.42
T3	27.78	139.81	97.74	62.86	18.23
T4	29.84	150.10	102.67	66.77	17.50
T5	31.17	155.76	104.01	67.18	17.25
T6	31.69	159.36	110.39	72.22	17.24
T7	32.41	162.96	108.95	72.02	17.08
T8	33.54	168.62	113.07	74.79	17.73
T9	34.05	169.03	116.97	77.37	17.49
SEm±	0.67	2.91	10.74	1.23	0.45
CD(P=0.05)	2.01	8.73	NS	3.71	NS