

Crop Production

AS – 42 – Agronomic evaluation of promising new sugarcane genotypes

1	Objective	:	To work out agronomy of sugarcane genotypes from advance varietal trial (AVT)
2	Year of start	:	2010-11
3	Year of completion	:	Continue
4	Design	:	RBD
5	Treatment	:	3 varieties from early group & 4 from midlate maturity group
6	Plot size	:	6 rows of 6 m length
7	Replication	:	4
8	Date of sowing	:	10.04.2012
9	Date of harvesting	:	12.01.2013

AS 42 a: Effect of different fertility levels on growth, yield and quality of early genotypes at Sriganganagar

Treatments	Germination (%)	Tiller (000/ha)	NMC (000/ha)	Cane yield (t/ha)	CCS%
Varieties					
Co 05009	34.37	191.21	111.74	91.73	11.41
CoPK 5191	38.24	194.56	102.37	95.16	10.57
Co 6617	38.13	179.26	96.72	85.46	11.24
CD at 5%	3.68	4.89	5.83	6.13	0.38
Fertility Levels (% of recommended 150 kg N/ha)					
75	36.18	177.41	96.24	83.46	10.92
100	35.17	186.36	102.57	91.78	10.87
125	34.36	189.24	106.73	94.17	10.73
CD at 5%	NS	4.89	5.83	6.13	NS

The experiment on early and midlate genotypes was conducted on sandy loam soil tested low in organic carbon (0.34%), medium in available P₂O₅ (24 kg/ha) and high in available K₂O (368 kg/ha).

In early group two genotypes Co 05009 and CoPk 5191 were tested against local check variety Co 6617. Genotypes CoPk 5191 produced highest cane yield of 95.16 t/ha which was significantly higher over local check Co 6617 (85.46 t/ha) but at par with genotypes 05009 (91.73 t/ha).

In different fertility levels recommended and 125% of recommended nitrogen improved cane yield significantly over 75% of recommended N, however, differences between 100 and 125% N for cane yield were not significant. Different N levels did not show any significant effect on cane quality. Varieties X fertilizer levels interaction were also non significant.

AS 42 b: Effect of different fertility levels on growth, yield and quality of midlate genotypes at Sriganganagar

Treatments	Germination (%)	Tiller (000/ha)	NMC (000/ha)	Cane yield (t/ha)	CCS%
Varieties					
CoPant 05224	41.87	189.24	118.28	96.36	11.73
CoH 05269	35.36	172.36	108.49	85.83	11.68
Co 05011	37.88	187.14	115.73	93.96	11.37
Cos 767	41.16	198.38	120.16	98.16	11.13
CD at 5%	5.13	6.16	7.28	4.87	0.37
Fertility Levels (% of recommended 150 kg N/ha)					
75	40.24	178.24	109.36	87.17	11.71
100	39.76	189.73	117.38	96.46	11.63
125	38.14	193.48	119.84	97.93	11.54
CD at 5%	NS	6.16	7.28	4.87	NS

Among the four midlate genotypes highest cane yield was given by the zonal check the variety CoS 767 (98.16 t/ha) but it was at par with CoPant 05224 (96.36 t/ha) and Co 05011 (93.96 t/ha). As regards of fertility levels, the data indicated that there was no significant response on cane yield beyond recommended dose of N (150 kg/ha). CCS percent in cane did not differ significantly due to different fertility levels.

AS - 64 – Response of sugarcane crop to different plant nutrients in varied agro-ecological situations

1	Objective	:	To study differential response of sugarcane crop to different nutrients
2	Year of start	:	2011-12
3	Year of completion	:	2013-14
4	Design	:	RBD
5	Treatment	:	12
6	Plot size	:	6 rows of 8 m length
7	Replication	:	3
8	Date of sowing	:	03.04.2012
9	Date of harvesting	:	16.01.2013

The local sugarcane variety Co 6617 was planted on 03.04.2012 and harvested on 16.01.13. The experiment was conducted on sandy loam soil tested low in organic carbon (0.34%), medium in available P₂O₅ (24 kg/ha) and high in available K₂O (368 kg/ha). The results of experimented indicated that germination percent remained uninfluenced. However, nutrient management treatments significantly increased cane yield over control. Alone or combined application of sulphur (40 kg/ha), ZnSO₄ (25 kg/ha) & FeSO₄ (Three 1% foliar spray) gave significantly higher cane yield over sole application of NPK fertilizers. Similarly, the application of S, Zn & Fe increased the sucrose per cent at harvest but it could not be reached up to the level of significance. Data further indicate that soil application of Mn (5 kg/ha) could not brought significant influence on cane as well as sugar yield.

AS 64 : Effect of treatments on yield and quality of sugarcane crop.

Treatments	Germination (%)	Cane yield (t/ha)	Sucrose (%) at harvest
T1- Control (No fertilizer)	40.91	55.24	17.41
T2- N (150 kg/ha)	40.84	72.73	16.11
T3- NP (40 kg P ₂ O ₅ /ha)	40.96	79.28	16.87
T4- NPK (40 kg K ₂ O/ha)	41.12	86.18	17.16
T5- NPK + S (40 kg/ha)	41.19	92.36	17.32
T6- NPK + Zn (25 kg/ha)	41.20	93.12	17.42
T7- NPK + Fe (1% foliar)	41.13	92.56	17.33
T8- NPK + Mn (5 kg/ha)	41.12	88.73	17.21
T9- NPK + S + Zn	41.21	93.98	17.48
T10- NPK + S + Zn + Fe	41.23	95.16	17.51
T11- NPK + S + Zn + Fe + Mn	41.36	95.39	17.52
T12- Soil test based RD	41.21	87.28	17.28
T13- FYM @ 20 t/ha	41.20	65.57	17.42
CD at 5 %	NS	6.12	0.42