Submitted to Director

Through: Head, Division of Crop Production

I request that the enclosed Annual report of the experiments **AS 42 - Agronomic Evaluation of Promising Sugarcane Genotypes under AICRP - Sugarcane** and **Impact of integrated application of organics and inorganics in improving soil health and sugarcane productivity**may please be forwarded to Dr. O.K. Sinha, Project Co-ordinator - Sugarcane, IISR, Lucknow - 226 002 as well as the PI.

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ANNUAL REPORT FOR 2014-15

ALL INDIA COORDINATED RESEARCH PROJECT ON SUGARCANE

CROP PRODUCTION (AGRONOMY AND SOIL SCIENCE)

Centre: Sugarcane Breeding Institute, Coimbatore - 641 007

Expt. No.AS 42. Agronomic Evaluation of Promising Sugarcane Genotypes

Report

The experiment aims at studying the response of promising sugarcane genotypes to graded levels of NPK application, viz. 75, 100 and 125 % recommended dose. The experiment was planted during February 2014 with a new set of four promising clones (Co 08001, Co 08009, Co 08016 and co 08020) which performed best in AVT along with Co 86032 as check. The experiment was laid out in Randomized Block Design with three replications. The experimental field was low in available N (228 kg N/ha) and high in available in P and K. The soil pH was 7.52 and the EC was 0.86 ds/m. Germination and initial crop growth was satisfactory. Data were recorded on growth, juice quality, cane yield and yield attributes. In the plant crop the shoot population showed significant difference due to varieties, wherein, Co 08016 (109.25 thousand/ha) recorded significantly higher number of shoot than all other varieties except the shoot count of variety Co 08009(101.07 thousand /ha) which was on par with it.

Juice quality (Brix, sucrose, purity and CCS percent) was studied by collecting cane samples at harvest. Juice Brix and Sucrose at harvest showed significant varietal difference whereas Purity and CCS (%) were found non-significant. In the plant crop Co 08016 recorded significantly highest mean brix of 21.25 and it was at par with the brix recorded by Co 08009 (21.55).The varieties Co 08016 and Co 08009 recorded more than 19 % of juice sucrose and more than 13 % CCS.

The appreciable difference in mean cane yield was observed among the five varieties and it ranged from 56.22 to 139.85 t/ha (Table 1). The variety Co 86032 recorded the highest mean cane yield of 133.34 t/ha and the new genotype Co 08009 with 75 % of Recommended Dose of Fertilizer (225 kg N + 60 kg P_2O_5+120 kg K_2O) gave the on par yield of 113.00 t/ha with check variety Co 86032 The fertilizer levels did not significantly influence the cane yield .The CCS yield was significantly affected by the fertilizer levels. The effect of different treatments on CCS yield (t/ha) was similar to that on cane yield.

Table 1: Cane yield (t / ha) of promising sugarcane varieties at different fertilizer levels

Variety	Fertilizer level			
	75 %	100 %	125 %	Mean
Co 08001	56.22	73.14	86.12	**71.83**
Co 08009	113.00	136.72	115.12	**121.61**
Co 08016	110.83	111.62	103.93	**108.79**
Co 08020	107.48	88.11	98.68	**98.09**
Co 86032	125.14	139.85	135.04	**133.34**
Mean	**102.53**	**109.89**	**107.78**	

	CD
Varieties	30.26
Fertilizer levels	NS
V x F	NS

As per the technical programme -2015-16, the experiment aims at studying the response of promising sugarcane genotypes to graded levels of Nitrogen application, viz. 75, 100 and 125 % recommended dose was initiated. The experiment was planted during January 2015 with of a new set of four promising clones (Co 08009, Co 08016 and Co 08020, Co09004) which performed best in AVT along with Co 86032 and CoC 671 as checks. The experiment was laid out in Randomized Block Design with three replications. The experimental field was low in available N (216.38 kg N /ha) and high in available in P and K. Observations on germination revealed that Co 08016 genotype recorded the highest germination count of 79.92 at 45 DAP, however, application of varied level of nitrogen could not influence the germination count significantly.

No. AS- 68. Impact of integrated application of organics and inorganics in improving soil health and sugarcane productivity

Report:

A field experiment with objective of developing nutrient management strategy for sustaining soil health and sugarcane production was laid out in randomised block design on 18 January 2015 with 9 treatments replicated thrice. The experimental field was low in available nitrogen (216.38 N kg/ha) and high in available P and K. Treatment scheduling was done consisting of application of organics and inorganics for nutrient management in sugarcane variety Co 86032 wherein at the time of planting as basal dose full phosphorous and FYM was applied as per the treatments. In two split applications i.e. at the time of partial earthing up (45 DAP) and full earthing up (90 DAP) nitrogen and potassium were applied. The germination and initial crop growth is satisfactory and recorded average germination of 58.83 and 65.64 per cent at 30 and 45 DAP, respectively