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STUDY THE PERFORMANCE OF ELITE SUGARCANE GENOTYPES IN DIFFERENT STATION TRIALS

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ABSTRACT

Twelve sugarcane genotypes along with checks were tested in station trial early and eleven genotypes in Midlate for yield and other quality parameter in the field during 2013-15 Suru and Midlate seasons at Central Sugarcane Research Station, Padegaon. For suru season the genotypes MS 10001 was recorded significantly highest cane yield (123.34 t/ha) and CCS yield (18.99 t/ha) over all the genotypes and except the checks Co 86032 (119.33 t/ha, 18.32 t/ha) found at par with it respectively. As far as quality is concern the checks Co VSI 434 was recorded significantly highest CCS % (16.81%) and sucrose (23.30%) over all the genotypes. In Midlate season the checks CoM 0265 (114.52 t/ha) recorded the significantly highest cane yield, the genotypes MS 10001 (114.00 t/ha), the checks Co 86032 (109.05 t/ha) were at par with it. For the CCS yield the genotypes MS 10001 (17.44 t/ha) recorded the higher CCS yield and the genotypes CoM 09057 (16.10 t/ha), CoM 0265 (17.18 t/ha), Co 86032 (16.85 t/ha) found at par with it. As far as quality is concern the genotypes CoM 09057 was recorded significantly highest CCS % (15.85%) and sucrose (22.64%) over all the genotypes and the checks.

KEYWORDS- *Sugarcane, Saccharum officinarum L., elite genotype.*

INTRODUCTION :

Sugarcane (*Saccharum officinarum* L.) is one of the most important food and cash crop of the tropics and subtropics which was cultivated in about 121 countries encompassing approximately half of the world. More than 80% sugar is produced from sugarcane only. They playing an important role in Indian economy also play a key role to the socio-economic prosperity in the state of Maharashtra. Sugarcane was cultivated on 8.35 lakh hac. area in Maharashtra (2015-16) with the production of 83.79 lakh tone and productivity is 88 t/ ha (Anonymous 2015). Variety is the cardinal importance in sugarcane cultivation .It should fulfill not only the

requirement of cane in early and Midlate season but should also ensure high cane and sugar yield under varied climatic situation. The selection of the variety alone improves the sugarcane yield in ranges between 28 to 60 %(Katiresan *et.al.*, 2001).

As variety plays important role in increasing the cane yield. CCS yields, proper selection of them are important (Atkin *et. al*. 2014) and Sanghera *et. al* 2014). Continuous research on selection and identifications of promising sugarcane varieties for particular agro climatic situation will be the appropriate approach for realizing sustainable sugarcane productivity. The work on varietal improvement is also going on at Central sugarcane research station, Padegaon Tal. Phaltan Dist. satara. The present sugarcane varieties are complex hybrids derived from the inter specific crosses involving *S.officinarum* (2n=80) and *S.spotanum* L. (2n =128) species. Development of different varieties considering the climatic situation the present investigation was carried to find out the suitable clone for early and Midlate maturing sugarcane varieties form station trials for Maharashtra state,

MATERIALS AND METHODS

A field experiment with nine sugarcane promising clones with two checks are conducted in suru (spring) season in the year 2014-15, and nine clones with two checks for Midlate season in the year 2013-15 for station trial at Central Sugarcane Research Station Padegaon Tal. Phaltan Dist. Satara. (M.S)was conducted. The experiment were conducted in R.B.D. with three replication with the plot size 6 m x 8 rows, with interspacing of 1.20 m. All the recommended package of practices was followed for better cane yield. Data were recorded on yield, yield contributing quality parameters and analyzed by procedure given by Panse and Sukatme (1978).The quality parameter were estimated Anonymous (1965) from the juice extracted from five representative canes selected randomly from each plot. Mean of Cane yield (t/ha), CCS yield (t/ha), CCS%, Sucrose %, were compared at the time of harvest.

RESULT AND DISCUSSION

Result are obtained from the observation for the suru trials are represented in Table No. 01, and the mild late in Table No. 2 . For suru the yield difference due to various genotypes in respect of cane yield, CCS yield CCS% and Sucrose % were found to statically significant.

Sr. No.	Genotypes	Cane yield t/ha	CCS yield t/ha	CCS% at harvest	Sucrose % at harvest
1	PDN 13001	110.41	16.42	14.87	21.70
2	PDN 13002	108.91	16.37	15.00	21.13
3	PDN 13003	91.99	13.59	14.77	20.69
4	PDN 13004	94.61	13.91	14.77	20.52
5	PDN 13005	101.31	14.52	14.34	20.05
6	PDN 13006	100.05	14.10	14.12	19.64
7	PDN 13007	113.31	17.08	15.08	21.72
8	Co PDN 13001	97.47	15.99	16.41	22.89
9	Co PDN 13002	103.21	16.93	16.41	22.83
10	MS 10001	123.34	18.99	15.38	21.57
11	VSI 434©	114.04	17.74	16.81	23.30
12	Co 86032©	119.33	18.32	15.36	21.05
	SE + -	0.92	0.16	0.14	0.16
	CD @ 5%	7.52	1.33	1.18	1.27
	CV %	5.94	7.15	5.89	4.51

Table:01

The genotypes MS 10001 was recorded significantly highest cane yield (123.34 t/ha) and CCS yield (18.99 t/ha) over all the genotypes and except the checks Co 86032 (119.33 t/ha, 18.32 t/ha) which found at par with MS 10001 respectively. The other check Co VSI 434 was found at par (17.74 t/ha) with MS 10001 for CCS yield. As far as quality is concern the checks Co VSI 434 was recorded significantly highest CCS % (16.81%) and sucrose (23.30%) over all the genotypes. The genotypes Co PDN 13001 (16.41%, 22.89%) and Co PDN 13002 (16.41%, 22.83%) were found at par with it for CCS% and sucrose % respectively.

Station trial Midlate

Sr. No.	Genotypes	Cane yield t/ha	CCS yield t/ha	CCS% at harvest	Sucrose % at harvest
1	PDN 13008	75.90	10.75	14.16	20.41
2	PDN 13009	76.67	10.63	13.91	19.57
3	PDN 13010	69.51	10.25	14.72	20.52
4	PDN 13011	90.18	13.37	14.84	20.67
5	PDN 13012	95.23	14.20	14.88	20.76
6	Co PDN 13003	86.91	11.91	13.74	19.35
7	Co PDN 13004	82.13	11.91	14.50	20.40
8	MS 10001	114.00	17.44	15.30	21.51
9	CoM 09057	101.64	16.10	15.85	22.64
10	Co 86032©	109.05	16.85	15.45	21.31
11	CoM 0265©	**114.5**	17.18	15.01	20.68
	SE + -	**1.19**	0.18	0.09	0.11
	CD @ 5%	9.83	1.47	0.72	0.93
	CV %	8.46	8.69	3.48	3.19

In station trial Midlate group the yield difference due to various genotypes in respect of cane yield, CCS yield, CCS% and Sucrose % were found to statically significant(table No. 02). Significantly highest cane yield was recorded by the check CoM 0265 (114.52 t/ha). The genotypes MS 10001(114.00 t/ha), Co 86032 (109.05 t/ha) was recorded at par cane yield. For the CCS yield MS 10001 recorded significantly highest CCS yield (17.44 t/ha) the other genotypes CoM 09057 (16.10 t/ha) and the check Co 86032 (16.85 t/ha), CoM 0265 (17.18 t/ha) were found at par with it. The CCS % at harvest the genotype CoM 09027 (15.85 %) was found significantly superior over all other genotypes except MS 10001 (15.30 %), the check Co 86032 (15.45%) CoM 0265 (15.01 %) was at par with it. The genotype CoM 09057 (22.64 %) was found significantly superior over all the genotypes and the checks.

Similar result were observed by Nigade et.al.(2004),Johiya et.al.(2008),and Pene et.al.,(2007).From the result we conclude that the sugarcane genotypes MS 10001 are showing best performance in both the station trials above the checks. After further Multilocation trials for confirming the result the variety may released for Maharashtra for Midlate and suru season.

REFERENCES

1.Anonymous (1965) System of technical control for cane sugar factories in India. The sugar technologist association of India , Kanpur.

2.Anonymous (2015) Research review committee report, CSRS., Padegaon .pp.12-15.

3.Atkin F.C.,Dieters M.J., Stringher J.K.,(2009) Impact of depth of pedigree and inclusion of historical data on estimation of additive variance and breeding values in sugarcane breeding programme. Theoretical and Applied Statistics 119:555-565

4.Hapse,R.S. and Hapse ,D.G. (1993) Comparatives study on some late maturing sugarcane varieties for

Maharashtra.,ISCA, Jaipur. Rajasthan Journal
5.Joshiya ,O.S., Nand K., Singh I.S., Singh D,N.,Singh R.R., (2008) Performances of early maturating sugarcane varieties in eastern Utter Pradesh . Indian Sugar ., 33-36
6.Kathiresan , G., Manoharan, M.L., Duraiswamy ,K., and Paneerselvan, S. (2001). Yield gap and bridging in sugarcane . Kissan world, 28 (2): 25-26.
7.Nigade,R.D., Kadem ,U.A. and Moore,S.N. (2004) Evaluation of sugarcane genotypes for yield and quality parameters under suru planting . Co operative Sugar, 36 (4): pp 331-334.
8.Panse, V.G. and Sukatame, P.V.,(1978) Statistical methods for agricultural workers, ICAR publication pp.374.
9.Pene, C.B., Tuo,K., (2007) Early and late mayturing sugarcane varieties screening in Northan Ivory Coast Proc., Int., Soc. Sugarcane Technology., 26: 531-532
10.Sanghera G.S.,Tygi V., Kumar R.,Thind K.S., and Sharma B., (2014) Quality parameters and their association with the cane yield in sugarcane under subtropical conditions. In proceeding of National Symposium On crop Improvement for inclusive sustainable development held at Punjab Agri. Uni., Ludhiana Nov. 7-9 pp.796-98.
11.Singh, J.R.P.,Sinha, U.P., and Kumar S. (1999) ,Performance of mid late sugarcane varieties of N.C.Z.,in calcirothent soil of Bihar . Indian Sugar XLIX (6); pp 411-413.
12.Repale,J.M. and Hapse , R.S., (2005) Performance of promising sugarcane genotypes of Vasantdada sugar Institutes, Proc. Of 8 Th joint convection of the associations. pp: 34-38.
13.Singh, H.N., Rai, J.N., and Chauhan, R.V.S. (1989) Adaptability for yield and sucrose content in juice in sugarcane .Indian Sugar .pp: 37-39

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