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Short Communication

EVALUATION OF FLOWERING TYPE *SACCHARUM OFFICINARUM* CLONES

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Saccharum officinarum is the most important cultivated species as it is the source of genes for sucrose accumulation and low fibre content. The species was under extensive cultivation in all major sugarcane growing countries before the advent of man-made hybrid varieties. Its low tolerance to biotic and abiotic stresses prevalent in all major sugarcane growing tracts was responsible for its replacement from commercial cultivation. In India, it is used as a reliable female parent for interspecific hybridization, but the use of *S. officinarum* clones is limited due to their shy nature of flowering. Of the 752 clones available in the World Collection of germplasm maintained at Sugarcane Breeding Institute, Research Centre, Cannanore, only about 60 clones are of flowering type. To identify elite genetic stocks for various characters, 53 flowering type *S. officinarum* clones were evaluated during 1989-90 in a randomised block design with two replications. The clones were planted in a row plot of 6 m length spaced 90 cm apart. Twenty three-budded sets were planted in each row with equal distance. Sample juice analysis was done at 10 month crop age and the trial was harvested at 12 month crop age. Data on 12 quantitative characters pertaining to stalk yield and juice quality were recorded.

The analysis of variance showed significant differences among clones for all the traits indicating the potentiality of the population for isolating parents which may produce better progenies. The clones were compared with the general mean of the population to identify elite genetic stocks for 12 characters. Top fifteen clones arranged in descending order of their performance were identified for each character (Table-1). The clones **Gungera** and **Sarawak** unknown were the best which were identified for all the characters except for juice extraction per cent in case of the former and sucrose per cent in juice at 10 months of the latter. The clone 57NG-126 for 10 characters, Saipan G and NG 77-81 for eight characters and NG 77-66 for seven characters were also identified as elite genetic stocks.

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Table 1. Elite genetic stocks (clones) of *S. officinarum* for various characters

Sl. No.	No. of millable stalks	Stalk diameter (cm)	Stalk length (cm) (kg)	Single stalk weight (kg)	Stalk yield/ plot (kg)	Juice extraction %	Brix%	Sucrose % 10 mon.	Sucrose % 12 mon.	Purity%	CCS%	CCS/plot (kg)
1.	M. Gayan*	Rayada*	NG77-62*	S.unknown*	Naz*	NG77-177*	Gungera*	Gungera*	Gungera*	Gungera*	Gungera*	Gungers
2.	Naz*	28NG208*	Sinense*	Rayada*	M. Gayam*	Str. Mauritius*	Ng77-66*	28NG224*	NG77-66*	S.unknown*	S.unknown*	
3.	51NG77*	S.unknown*	NG77-92*	57NG168*	S.unknown*	M. Red	NG77-60*	28NG210*	S.unknown*	Saipan G*	NG77-66*	57NG126*
4.	57NG126*	NG77-15*	NG77-43*	Gungera*	57NG126*	Bt. strn. Aubin	28 NG224*	28NG208*	NG77-99*	NG77-81*	NG77-81*	
5.	Sinense*	Green German	S. unknown*	NG77-62*	NG77-62*	Baragua	NG77-99*	Saipan G*	57NG126*	NG77-65*	57NG126*	NG77-62*
6.	NG77-62*	NG77-31* purpose	Cebu It. ritius*	Str. Mau-	Gungera*	NG77-26	28NG208*	NG-116*	NG77-81*	Koelz 11132*	NG77-99*	Baragua*
7.	Ng77-81*	57NG168*	Mant. 1583	Green German*	Baragua*	Red Cane	S. unknown*	NG77-60*	Saipan G*	NG77-63 str*	Saipan G*	Saipan G*
8.	Gungera*	Saipan G*	M. Red	NG 77-92*	NG77-81*	28NG208	57NG126*	NG77-99*	28NG208*	28NG215*	Koelz11132*	NG77-66*
9.	Baragua*	Bt. Str. Abuin	57NG110	Mant.1585*	Saipan G	NG77-14	NG77-81	NG77-43*	Kielz-	28NG221*	NG77-63 str*	Koelz 11132
10.	57NG203*	Baragua	Gungera	Koelz11132*	57NG168	Fiji-40	Saipan G	28NG215*	28NG224*	57NG126*	28NG208*	Sinense
11.	Fiji-15*	Gungera	M. Gayam	Saipan G str.	NG77-66	NG77-63-	Koelz1 113257	Ng126*	NG77-60*	NG77-66*	28NG221*	#NG77-43
12.	NG77-26*	NG77-63str.	28NG224	57NG126	NG77-43	NG77-31	NG77-53 str.	NG77-92*	NG77-63str*	NG77-99*	NG77-65*	Green German
13.	NG77-66	NG77-81	57NG126	Baragua	M.Red	NG77-137	28NG221	Baragua*	28NG221*	28NG2-8	28NG224*	NG77-99
14.	S.unknown	No-116	Str. Mau- ritius	57NG177	Sinense	Oramboo	NG77-43	Koelz 11132*	Ng77-65*	57NG222	28NG215*	M.Red
15.	57 NG 110	Red Cane	57 NG 57	No 77-15	Green German	S. Unknown	NG 77-137	57 NG 110*	28 NG 215*	Sinense	NG 77-60*	Naz.
Range+	11-138	1.70-3.45	0.96-2.48	0.41-1.43	7.0-92.0	25.6-70.0	12.44+21.73	6.57-17.66	7.57-20.02	60.99-92.14	4.08-14.08	0.68-10.65
G.M.	43.7	2.48	1.70	0.76	34.1	52.4	18.30	12.42	15.37	83.41	10.36	3.54
C.D.	15.2	0.43	0.42	0.18	17.7	10.7	1.65	1.52	1.93	5.41	1.55	1.75

*Significantly superior to general mean (G.M.) at P = 0.05

+Range : In the population

Table 2. Performance of top five *S. officinarum* clones for commercial cane sugar % (CCS %) at 12 month stage

Sl.	Clone	CCS % yield/ plot (kg)	Stalk plot (kg)	CCS/ millable stalks	No. of diameter (cm)	Stalk length (m) (kg)	Stalk stalk/ weight	Single extraction %	Juice %	Brix %	Sucrose % 10 mon	Sucrose % 12 mon.	Purity %
1.	Gungera	14.08*	75.5*	10.65*	72*	2.78*	2.00	1.07*	53.8	21.73*	17.66*	20.02*	92.14*
2.	Sarawak unknown	13.23*	79.0*	10.48*	56	3.15*	2.18*	1.43*	56.1	20.37*	13.62	18.77*	92.12*
3.	NG 77-66	13.12*	44.1	5.78*	56	2.25	1.90	0.79	45.5	21.03*	12.63	18.84*	89.62*
4.	NG 77-81	12.86*	61.5*	7.89*	73*	2.73	1.53	0.84	54.3	19.93	14.12*	18.27*	91.69*
5.	57NG126	12.83*	78.3*	10.00*	86*	2.60	1.95	0.92	55.5	20.29*	14.70*	18.35*	90.43*

* Significantly superior to G.M. at P = 0.05

S. officinarum is the source of genes for quality, the performance of five top quality (commercial cane sugar %) clones is presented in Table 2. Interestingly enough all these clones, excepting NG77-66, were superior to the population mean for stalk yield also. Depending upon the cross combinations and synchronization in flowering time of the parents the selected clones could be utilized in future breeding programmes for sugarcane improvement in the country.