

BIOMETRIC EFFICIENCY OF SUGARCANE PROMISING AND COMMERCIAL CLONES AT DIFFERENT LOCALITIES IN CENTRAL PUNJAB

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ABSTRACT

Eight sugarcane promising and commercial clones were evaluated at Sugarcane Research Institute, Faisalabad. These clones were tested for their performance at three locations during February- March 2016-17 in Central Punjab viz Nawan Lahore, Tandlianwala and Shorkot. The trials were conducted at farmer's field using RCBD with three replications. The data on germination%, tillers/plant, no. of millable canes, cane yield t/ha and CCS % were recorded during the course of study. The sugarcane clone S2006-US-658 gave the 17.9% higher cane yield as compared to the check variety CPF-249. As far as CCS % is concerned, clone S2003-US-633 gave the highest sugar recovery that is 4.3% more than check variety whereas S2006-US-658 has the lowest CCS % i.e. 0.7 % less than the check variety.

INTRODUCTION

Sugarcane is the 2nd major cash crop of the Pakistan, where it is grown on commercial scales in three provinces i.e. Punjab, Sindh and Khyber Pakhtunkhwa (Wikipedia, 2016). The cane and sugar yield obtained in our country is still less than that of other developed cane growing countries of the world.

This is mainly due to unavailability of new sugarcane varieties having high cane yield and sugar potential. The average sugarcane yield of Punjab is

64.07 t/ha, which is higher than the national average cane yield i.e. 54.34 ton/ha during the year 2016-17. Fortunately, average cane yield of sugarcane and sugar recovery of Pakistan is at par with the world average. The sugar recovery of Pakistan was around 9.97 percent. The most feasible option is to plant new sugarcane varieties that are capable of producing sugar and other products of economic importance at lower cost than the existing commercial varieties to enhance crop productivity and sugar recovery in the country.

MATERIALS AND METHODS

The study was comprised of eight sugarcane promising and commercial clones viz; S2003-US-127, S2003-US-633, S2006-US-658, S-2008-FD-19, CPF-246, CPF-247, CPF-248, and CPF-249 at three different locations during February-March 2016-17 in Central Punjab. The details of locations with varieties are as under:

Locations	Varieties
Chak No. 165/J.B Nawan Lahore	S2003-US-127, S2003-US-633, S2006-US-658, S2008-FD-19, CPF-246, CPF-247, CPF-248, and CPF-249
Chak No.596/G.B Tandlianwala	S2003-US-127, S2003-US-633, S2006-US-658, S2008-FD-19, CPF-246, CPF-247, CPF-248, and CPF-249
Mauza Yarewala Shorkot	S2003-US-127, S2003-US-633, S2006-US-658, S2008-FD-19, CPF-246, CPF-247, CPF-248, and CPF-249

Experiment was laid out in RCBD with three replications on an area of half acre. Data on germination %, tillers/plant, no. of millable canes/ha, cane yield tons/ha and CCS% was recorded using the standard procedure. The data was analyzed by MSTATC programme and difference of means were compared with LSD test (Steel and Torrie 1990).

RESULTS AND DISCUSSION

Chak No.165/J.B Nawan Lahore

The Table-1 revealed that the clone S2006-US-658 gave the significantly maximum cane yield i.e. 148 tons/ha at this location. Higher yield produced by this clone seems to be due to significantly more no. of millable canes/ha. Commercial & promising clones CPF-249, CPF-246, S2008-FD-19, S2003-US-127, CPF-247 and S2003-US-633 produced less cane yield than S2006-US-658, however, others are statistically at par with one another. The lowest cane yield (102 t/ha) was produced

by CPF-248. The highest CCS% 12.8, 12.7 and 12.7% was produced by S2003-US-633, S2003-US-127, and CPF-246 respectively. Sarwar *et al.*, (2016) has reported that varieties behaved differently with estimation to millable canes, cane yield and CCS%. The results are in conformation to the present findings.

Chak No. 596/G. B Tandlianwala

The perusal of the data in Table-2 indicated that significantly maximum tillers/plant (1.9) was produced by S2003-US-127 which was statistically at par with S2008-FD-19, S2003-US-633, CPF-247 and CPF-246. The clone S2003-US-633 produced statistically significant millable canes/ha while the variety CPF-248 gave the lowest millable canes/ha. The clone S2008-FD-19 exhibited higher cane yield which was followed by S2006-US-658 and S2003-US-633 while the variety CPF-248 gave the lowest yield (56 t/ha). The CCS% of S2003-US-633 is the maximum (12.6) among the clones but S2003-US-658 gave the lowest (10.4). The findings of Sarwar *et al* (2016)

are in agreement with these findings.

Mauza Yarewala, Shorkot

It is obvious from the data in Table-3 that the varieties/clones CPF-246, CPF-247, S2008-FD-19 and S2006-US-658 gave statistically different germination% and varieties CPF-248 and CPF-249 showed the lowest. The variety CPF-249 produced the statistically maximum tillers/plant (2.31) and millable canes (000)/ha (193). The varieties CPF-246 and CPF-247 produced statistically lower tillers/plant (1.63, 1.71) and no. of millable canes (000)/ha (135, 138). The clone S2006-US-658 gave the higher cane yield (156) tons/ha while the CPF-246 produced the lowest cane yield (96) tons/ha. Afghan *et al* (2013) have reported that no. of millable canes positively correlated with cane yield. The CCS% of all varieties are statistically at par except S2006-US-658 which gave the lowest sugar contents.

CONCLUSION

- It was shown in graph that the sugarcane variety S2006-US-658 gave 17.9% increased cane yield tonnes/ha over the control variety CPF-249. Similarly, the sugarcane clone S2008-FD-19 and S2003-US-127 produced the 5.2% and 3.1% increased cane yield tonnes/ha over the check sugarcane variety.
- The sugarcane clones S2003-US-633 gave 1.9% decrease in yield ton/ha over the check variety.
- As far as, the CCS% is concerned the sugarcane clones S2003-US-633, S2003-US-127 and S2008-FD-19 gave the 4.3, 2.9 and 0.9% respectively more CSS% over the check variety. While the sugarcane clone S2006-US-658 gave 0.7% less CCS% over the check variety.

Table-1 Chak No. 165/Gandewala, Nia Lahore

Sr. No.	Varieties / clones	Germination%	Tillers / plant	Millable canes/ha (000)	Yield (t/ha)	CCS %
1	S2008-FD-19	59.8 b	2.19 a	179 a	120 bc	11.99 ab
2	S2006-US-658	57.2 bc	1.69 b	177 ab	148 a	10.8 c
3	S2003-US-633	76.5 a	1.43 c	158 cde	113 bc	12.8 a
4	S2003-US-127	54.6 cde	1.44 c	159 bcd	125 b	12.7 a
5	CPF249	53.8 de	1.75 b	172 abc	127 b	11.4 bc
6	CPF 248	56.6 bcd	1.38 c	147 de	102 c	11.6 bc
7	CPF 247	52.5 e	2.10 a	186 a	115 bc	11.3 bc
8	CPF 246	75.3 a	1.36 c	110 e	120 bc	12.7 a
LSDat0.05		3.29	0.238	18.23	19.56	0.98

Table-2 Chak no. 596/GB, Tandlianwala

Sr. No.	Varieties / clones	Germination %	Tillers / plant	Millable Canes / ha	Yield (t/ha)	CCS %
1	S2008-FD-19	40.2 de	1.6 ab	200 b	168 a	11.1 bc
2	S2006-US-658	41.1 de	1.2 bc	158 d	163 ab	10.4 c
3	S2003-US-633	52.7 ab	1.5 ab	226 a	158 ab	12.6 abc
4	S2003-US-127	37.8 e	1.9 a	181 bc	142 c	11.1 bc
5	CPF249	45.2 cd	1.1 bc	195 b	140 c	11.9 abc
6	CPF 248	50.8 bc	0.7 c	90 e	56 f	11.8 abc
7	CPF 247	50.4 bc	1.6 ab	191 b	147 bc	10.9 c
8	CPF 246	58.6 a	1.4 ab	168 cd	140 c	11.5 abc
LSD at 0.05		6.29	0.69	18.61	16.49	1.41

Table-3 Moaza Yarewala, Basti Mangna, Shorkot

Sr. No.	Varieties / clones	Germination %	Tillers / plant	Millable Canes/ha (000)	Yield (t/ha)	CCS %
1	S2008-FD-19	55.6 a	1.92 ab	158 b	128 bc	11.9 ab
2	S2006-US-658	53.2 a	1.72 b	155 bc	156 a	10.5 c
3	S2003-US-633	49.3 ab	1.85 ab	157 b	117 c	12.5 a
4	S2003-US-127	52.3 ab	2.04 ab	162 b	139 ab	12.1 a
5	CPF-249	43.9 b	2.31 a	193 a	128 bc	11.7 b
6	CPF 248	44.1 b	1.73 ab	140 cd	115 cd	12.5 a
7	CPF 247	55.9 a	1.71 b	138 d	119 bc	12.4 a
8	CPF 246	56.5 a	1.63 b	135 d	96 d	12.3 ab
LSD at 0.05		9.0	0.59	15.79	19.90	0.97

Summary Table Pooled means of 3 Locations for 5 clones during 2016-17

Sr. No.	Variety	Increased Yield %	Increased CCS %
1	S2008-FD-19	5.2	0.9
2	S2006-US-658	17.9	-0.7
3	S2003-US-633	-1.9	4.3
4	S2003-US-127	3.1	2.9
5	CPF-249	0.0	0.0

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