

Performance of some newly released Sugarcane Varieties Under High Ganges River Flood Plain Soils

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ABSTRACT

A comparative study for six newly released sugarcane varieties viz. Isd 26, Isd 28, Isd 29, Isd 30, Isd 31 and Isd 34 with the varieties those released in mid fifties like Isd 2-54 and LJC was carried out at Chuadanga and Jhenaidah sites under High Ganges River Flood Plain Soils. The variety Isd 29 gave the highest yield (122.5 t ha^{-1}) at Chuadanga site followed by Isd 34 (106.9 t ha^{-1}) and Isd 31 (103.3 t ha^{-1}). But at Jhenaidah site, no difference in yield was recorded which were statistically similar though Isd 28 produced highest yield (101.5 t ha^{-1}) followed by Isd 31 (92.5 t ha^{-1}).

Key words : Sugarcane variety, tillers, millable canes and yield.

INTRODUCTION

Sugarcane varieties which were developed in late fifties and eighties namely Isd 2-54, LJC and Isd 16 are still occupying a major part of total cane acreage both in mill and non mill zone areas of Bangladesh (Anon., 2000). The progress of dissemination of latest developed sugarcane varieties is very low in all the mills zone of Bangladesh. On the other hand, sugar cane varieties gradually degenerate over a considerable period of cultivation and show a tendency to decline in yield and vigour (Barnes, 1954 and Humbert, 1959). In Bangladesh, the average sugarcane yield is 42.13 tons per hectare (BBS, 1998) which was the lowest compared to neighbouring cane producing country like India (Anon., 2001). Due to the above reasons, dissemination of latest developed varieties is of utmost importance in sugar mills as well as growers field of Bangladesh. In the recent past a study on performance of some newly released sugarcane varieties was conducted in growers field under Tista Meander Flood plain soils (Paul *et al.*, 1994) but no such work has been done to evaluate the performance of the latest sugarcane varieties under High Ganges River Flood plain soils (AEZ-11) of Bangladesh. Therefore, the present study was undertaken to evaluate the comparative performance of latest varieties with the varieties released earlier at growers field of Chuadanga and Jhenaidah sites of High Ganges river Flood plain soils.

MATERIALS AND METHODS

The experiment was conducted at two locations viz. Carew and Co. (Bangladesh) Ltd., Darsana, Chuadanga and Mobarakgonj Sugar Mills, Naldanga, Jhenaidah Under High Ganges River Flood Plain Soils during the cropping Season 2001-2002. Eight sugarcane varieties such as Isd 2-54, Isd 26, Isd 28, Isd 29, Isd 30, Isd 31, Isd 34 and

LJC were included in the experiment which were planted in RCB design and replicated thrice. Two budded settlings of each sugarcane varieties raised in soil bed were transplanted in mid December, 2001. The age of settlings was six weeks. Before planting, land was prepared properly. The trenches were made by spade with 25 cm depth. The settlings were transplanted in main field at 100 cm row to row and 45 cm plant to plant distance followed by flood irrigation. Fertilizers were applied in each location as per recommended dose (RFD) of BSRI in 1998. Full doses of TSP, Gypsum, Zinc sulphate, 1/3rd MP and 1/3rd urea were applied in trenches during the time of transplantation. The rest MP and Urea were applied in two equal splits at early growth stage and late tillering phase of sugarcane. Intercultural operations were done as and when required. Crop was harvested in mid January, 2002. Data on different growth parameters were collected and analyzed statistically.

RESULTS AND DISCUSSION

From the results (Table 1) it is observed that at Chuadanga site, the test varieties did not show any difference statisticals in producing tillers but difference was observed in millable cane production where Isd 2-54 produced the highest number of millable canes ($194.00 \times 10^3 \text{ ha}^{-1}$) followed by Isd 34 ($176.5 \times 10^3 \text{ ha}^{-1}$) and LJC ($176.4 \times 10^3 \text{ ha}^{-1}$). In case of yield, the highest yield (122.5 t ha^{-1}) was found in Isd 29 followed by Isd 34 (106.9 t ha^{-1}) and Isd 31 (103.3 t ha^{-1}). Remarkably lowest yield (44.6 t ha^{-1}) was obtained from Isd 28 because canes were badly infected and damaged by red rot disease (Personal observation). At Jhenaidah site (Table 1) significant difference was observed in tiller production giving the highest number in Isd 31 ($192.5 \times 10^3 \text{ ha}^{-1}$) followed by LJC ($180.3 \times 10^3 \text{ ha}^{-1}$) while Isd 2-54, Isd 26, Isd 29, and Isd 30 produced tillers which were statistically similar. In case of millable canes, no difference was observed among the test varieties. At Jhenaidah, among the treatments yield of cane was also similar showing no statistical difference yet Isd 28 gave the highest yield (101.5 t ha^{-1}) followed by Isd 31 (92.5 t ha^{-1}).

Recently released test varieties showed almost identical millable cane production both at Chuadanga and Jhenaidah sites which is in conformity with the work of Paul *et al.* (1994). Paul *et al.* (1994) who conducted performance trial with newly released varieties got higher yield of test varieties over control (standard). In the present study yield performance of all the test varieties was higher except Isd 28 (Chuadanga location) over standard varieties like Isd 2-54 and LJC indicating the result is at per with the work of Paul *et al.* (1994).

The results revealed that newly developed test varieties in the present experiment showed statistically higher production compared to varieties like Isd 2-54 and LJC, those were developed in mid fifties. As such there is a great scope to improve cane productivity by using clean seed cane of latest sugarcane varieties in the High Ganges River Flood plain soils (AEZ-11) of Bangladesh.

The variety Isd 2-54 and LJC though produced highest number of millable canes compared to the newly released test varieties yet it could not produce higher tonnage over newly released varieties like Isd 29, Isd 34 and Isd 31.

Table 1. Performance of BSRI bred newly released sugarcane varieties in respect of tillers, millable canes and yield at Chuadanga and Jhenaidah sites (AEZ 11), 2001-2002.

Variety	Chuadanga			Jhenaidah		
	Tillers (10^3 ha^{-1})	Millable canes (10^3 ha^{-1})	Yield (t/ha^{-1})	Tillers (10^3 ha^{-1})	Millable canes (10^3 ha^{-1})	Yield (t/ha^{-1})
Isd 2-54	215.8	191.0 a*	86.1 c*	172.3 bc*	114.0	80.8
Isd 26	196.5	173.3 b	96.4 bc	168.7 bc	106.9	90.6
Isd 28	195.0	58.8 d	44.6 d	164.9 c	108.7	101.5
Isd 29	188.3	154.7 c	122.5 a	172.8 bc	112.7	81.3
Isd 30	211.3	165.8 bc	95.8 bc	168.1 bc	111.7	82.9
Isd 31	187.2	175.0 b	103.3 abc	192.5 a	120.8	92.5
Isd 34	223.9	176.5 ab	106.9 ab	171.3 bc	114.4	90.9
L.Jaba C	203.4	176.4 b	86.4 b	180.3 ab	115.8	76.9
LSD(5%)	NS	14.61	20.43	3.44	NS	NS

* Figures in different columns accompanied by similar letters do not differ significantly as per DNMR test at 0.05 level.

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