

Performance of Some Newly Released Sugarcane Varieties in Growers field under Tista Floodplain Soils

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ABSTRACT

A comparative study on four newly released sugarcane varieties Isd-18, Isd-19, Isd-20 and Isd-21 against the standard varieties Isd-2/54 and Isd-16 was conducted at JSM growers field under Tista Floodplain soils. It was found that all the newly released sugarcane varieties tested produced significantly higher cane yield compared to standard variety Isd-2/54 and identical yield with variety Isd-16, a widely accepted high yielding variety. Therefore, there is a great scope to increase productivity by using newly released varieties in growers field in Tista Floodplain soil.

INTRODUCTION

The yield of a particular variety depends upon the heredity potential of the genotype and, the environment where it is exposed to during the course of its life cycle (Yadava, 1993), so yield trial of newly developed promising clones in different agro-ecological zones specially in the farmers field before releasing as varieties for commercially cultivation is very essential. Besides, high yielding clones don't perform equally in all agro-ecological zones. Therefore, Farmers Varietal Observation Trial (FVOT) is the requirement of National Seed Board (NSB) before releasing varieties. Consequently, the varieties grown in the sugar mill zones of Bangladesh aren't showing good in farmers field equally. Furthermore, sugarcane varieties gradually degenerate over a considerable period of cultivation, and show a tendency to decline in yield and vigour (Barnes, 1954 and Humbert, 1959). Considering the fact, a study with four newly evolved varieties was undertaken at JSM growers field of Tista Floodplain soils to evaluate the comparative performance of these newly released varieties.

MATERIALS AND METHODS

The experiment was conducted at JSM-Growers field under Tista Flood Plain soil during cropping season 1991-92 with six varieties of which four newly evolved and two commercial (standard) varieties. Each variety was treated as a treatment and each farmer was as replication. There were six replications. The treatments were as follows:

T_1 =Isd-2/54 (Standard), T_2 =Isd-16, T_3 =Isd-18, T_4 =Isd-19, T_5 =Isd-20, T_6 =Isd-21.

Settlings of sugarcane were transplanted in main field during mid November, 1991 and it was harvested during mid January, 1993. The method of planting was STP two budded soil bed settling. The age of settling was six weeks. The land was prepared by 6 ploughing and cross ploughing followed by laddering with bullock drawn country plough. Trenches were prepared by hand spade. the settlings were transplanted in main field at 100cm row to row and 45cm plant to plant distance. Fertilizers were applied at the rate of 125 kg N, 125 kg P_2O_5 and 110 kg K_2O /ha. Full doses of TSP, 1/3rd MP and 1/3rd urea were applied in trenches during the time of transplantation. The rest of MP and urea were applied in two equal split at early growth stage and late tillering phase of sugarcane. Intercultural operations were done as and when required. Data on percent establishment of settling in main field, tillering, tiller mortality, millable cane, and yield of sugarcane were recorded and analysed statistically.

RESULTS AND DISCUSSION

Results of the investigation are presented in the Table 1. Data on tillers production showed that variety Isd 2/54 (standard) produced the highest number of tillers ($237.3 \times 10^3 \text{ ha}^{-1}$) and the lowest tillers were obtained in variety Isd-16 ($193.0 \times 10^3 \text{ ha}^{-1}$) and it was statistically identical with Isd 18 ($195.2 \times 10^3 \text{ ha}^{-1}$). Tiller mortality in all varieties were found statistically identical, but the variety Isd-16 showed better performance. Considering the number of millable cane it may be noticed that there was no significant difference among the tested varieties in millable cane formation, but the highest number of millable cane was produced in Isd-19 ($120.4 \times 10^3 \text{ ha}^{-1}$) and it was the lowest in Isd-21 ($114.67 \times 10^3 \text{ ha}^{-1}$).

Table 1. Comparative performance of different sugarcane varieties in farmers field.

Varieties	Tillers (10^3 ha^{-1})	Tiller mortality (%)	Millable cane (10^3 ha^{-1})	Stalk weight (kg)	Yield (t ha^{-1})
Isd 2/54 (Std.)	237.3 a	48.6 a	119.9 a	0.97	115.7 b
Isd 16	193.0 b	38.0 a	116.9 a	1.30	151.5 a
Isd 18	195.2 b	38.5 a	118.5 a	1.26	149.0 a
Isd 19	228.4 ab	45.7 a	120.4 a	1.21	146.0 a
Isd 20	208.8 ab	41.4 a	118.5 a	1.21	143.0 a
Isd 21	214.8 ab	46.2 a	114.7 a	1.24	143.0 a

Evaluation the yield data presented in the Table 1, it is found that the significantly lowest cane yield was obtained in Isd 2/54 (115.7 t ha^{-1}) among all the

varieties used in the experiment. Although, all other tested varieties produced statistically similar yield, but the varieties Isd 16 and Isd 18 produced comparatively higher cane yields of 151.5 and 149.0 t ha⁻¹ respectively.

To get maximum possible yield of sugarcane, about 1.8-2.0 x 10³ millable cane per hectare coupled with individual stalk weight 2 kg are required (Yadava, 1993). However, in the present investigation millable cane was 1.2 x 10³ ha⁻¹ and individual stalk weight was 1.2 kg. The varieties tested in the present experiment produced much higher yield compared to national average of 41.6 t ha⁻¹. (BBS 1989), and there is a great scope to improve cane productivity by using newlyreleased SRTI varieties in the Tista Floodplain soils.

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