

Performance of Yield and Yield Contributing Characters of Gur Making Sugarcane Varieties in Modhupur Tract Soils

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ABSTRACT

Field Experiment was conducted at RSRS Farm Gazipur for testing the cane yield and sugar recovery for gur Making varieties in Modhupur tract soils (AEZ-28) under the non mill zone area. The tested varieties were Isd 18, Isd 24, Misrimala, Isd 20, Amrita, and Isd 16. Among the varieties Misrimala was considered as standard local variety. The highest yield and brix% was found in the variety Amrita and Isd 20. The second highest yield was obtained with the Isd 24, Isd 16, and Isd 18 which variety were shown good performance in the cane yield and brix%. So the study revealed that the tested varieties were good for gur making in respect of cane yield and brix%. Among all the varieties Amrita and Isd 20 was the best gur making variety in the Modhupur tract soils (AEZ-28) under the non mill zones.

Key words: Variety, yield, and AEZ.

INTRODUCTION

Sugarcane is one of the income generating cash crop which grown in the mill and non mill zone area, Sugar cane is mainly used for gur production, chewing and juice purpose in the millzone area. So sugarcane production increased per hectare is urgent need for sugarcane product under non mill zone area. About 60% of the non mill zone area were planted by BSRI released modern varieties for gur production and chewing cane. Barnes suggested that yield, juice quality, disease reaction and ratooning power of new promising varieties need to be compared with those of standard varieties under commercial cultivation. Paul *et al.*, observed that all the newly released sugarcane varieties tasted produced significantly higher cane yield compared to standard variety. Immam *et al.* reported that improved technologies of cultural practices don't have much effect on the quality of a crop. Mia *et al.* observed that varieties / clones having tall cane, more diameter and maximum number of millable cane have produced yield per hectare. There are also large number of gur (brown sugar) makers who produce gur by using either country crusher or power crushers. The gur makers usually offer a higher price of cane than that of Sugarmills (Alam 1977). Bangladesh gur, sugar and sugar product (Manufactures and movement) control order 1956, regulates the marketing of sugar can by demarcating the mill zone area from that of non mill zone area in order to ensure supply of sugarcane to sugar factories (Rahman, 1975). The study was undertaken with five tasted varieties and was set up at the RSRS farm, Gazipur district under Madhupur tract soil (AEZ-28) to evaluate the comparative yield performance of those gur producing varieties. Brix or TSS (Total soluble solids) is an important parameter in determining sugarcane juice quality. The hand refractometer is capable of giving indications of the solid content usually approximating those obtained by drying (Meade and Chen, 1977).

MATERIALS AND METHODS

The experiment was set up at RSRS farm, Gazipur district under Modhupur tract soil during the cropping season 2004-2005. There were six cane variety of which five varieties for gur producing and one variety for local standard. Each variety was treated as treatment. The treatment were as To-Misrimala (local-standard variety) T_1 -Isd 18, T_2 -24, T_3 -Isd 20, T_4 -Isd-16 and Amrita. The experiment was laid out in randomized complete block design (RCBD) with three replications. The unit plot size was 8mx 6m. The land was prepared by tractors. Two bud settlings were raised in soil bed nursery. Forty five days settings of sugarcane were planted in the main field at the mid Febuary 2005 maintaing the spacing row to tow 1 m and plant to plant to 60 cm. The experiment was harvested at the mid February 2006. Fertilizers were applied at the rate of urea 240 kg, TSP 200kg, MP 200kg, Gypsum 165 kg, Regent 33 kg and, Faraday 40 kg ha^{-1} . The full dose of TSP, Gypsum, zinc soleplate and 1/3 MP were applied in two equal split at early growth stage and late tailoring stage. Furadan 8 kg used for the control of top shoot borer and early shoot borer 3kg Regent used for the control of termite. Regent used in the plot during the use of basal dose of fertilizer 8 kg furadan applied in the plot, 4 kg furadan applied during the 1st split does and 4 kg furadan applied during the 2nd split dose. Live irrigation was applied after transplantation, intercultural operation like weeding, mulching irritigation, disease and pest control were done as and when necessary. Date on tell ring was recorded at 90 days after planting and data mill able cane, yield of cnae and bricks % were recorded at harvest and analyzed statistically.

Table 1. Tiller Production, millable cane, yield and brix%.

Varieties	Tiller Production (.000/ha)	Millablecane (.000/ha)	Yield (TCH)	Brix (%)
T_0 -Misrimala	413.75	87.36	89.17	19.05
T_1 -Isd 16	282.91	87.64	86.25	18.11
T_2 -Isd 18	248.05	83.61	87.46	18.55
T_3 -Isd 20	317.78	133.33	95.42	20.00
T_4 -Isd 20	313.89	121.52	89.58	19.05
T_5 -Isd 24	297.22	100.14	99.17	20.21
LSD at 5%	47.05	7.86	21.48	2.37
CV%	7.9	4.2	12.9	6.8

RESULTS AND DISCUSSION

Tiller production: Form table 1 it revealed that the highest tiller production was observed by the standard variety Misrimala ($413.75 \times 10^3 ha^{-1}$). There was no significance difference of tiller production of the test variety Isd 20 ($317.78 \times 10^3 ha^{-1}$) and Isd 24 ($313.89 \times 10^3 ha^{-1}$) which were followed by the variety Amrita ($297.22 \times 10^3 ha^{-1}$) and Isd 16 ($282.91 \times 10^3 ha^{-1}$). The lowest number of tiller production was obtained by the variety Isd 18 ($248.05 \times 10^3 ha^{-1}$). The findings partially supported the result of (Anon 1979) who found variation in tiller production among different varieties.

Millable cane: In case of millable cane (Table 1) the highest millable cane was found by the variety Isd 20 ($133.33 \times 10^3 \text{ ha}^{-1}$) which was identical with the variety Isd 24 ($121.52 \times 10^3 \text{ ha}^{-1}$) and the variety Amrita ($100.14 \times 10^3 \text{ ha}^{-1}$). The lowest millable cane was obtained by the variety Isd 18 ($83.61 \times 10^3 \text{ ha}^{-1}$) which were lower number of millable cane variety Isd 16 ($86.25 \times 10^3 \text{ ha}^{-1}$) and the standard variety Misrimala ($89.17 \times 10^3 \text{ ha}^{-1}$). The result support that the finding Miah *et al.* who found variation in number in variable cane production who studied the performance of promising clones/varieties.

Cane Yield: As regards yield (Table 1) it revealed that there was no found significant different yield among the standard and all tested varieties. The highest yield was observed by the variety Amrita (99.17 t/ha) which was followed by Isd 20 (95.42 t/ha). The second highest yield was obtained by the variety Isd 24 (89.58 t/ha) which was similar the standard variety Misrimala (89.17 t/ha).

Brix% : Considering the brix (Table 1) at harvest of cane showed that non of them tested varieties could produced any significant difference of cane. The highest brix% 20.21 was produced by the variety Amrita followed by Isd 20 which produced (20%) Brix%. The lowest Brix% was found by the variety Isd 18 (18.55) the all other tested varieties and standard variety also produced higher number of Brix% in Sugarcane. So all the tested varieties are good for quality good production in respect of yield an Brix% but the highest yield and Brix% was found in the variety Amrita and Isd 20. Among all the varieties Amrita was the best for good production and as well as juice cane in the non-mill zone area of Modhupur tract soils of Bangladesh.

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