

Comparative Performance of different Planting Techniques of Sugarcane

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Sugarcane is an important cash crop of Bangladesh. Lower productivity of sugarcane compared to its yield potentiality is still a major constraint in Bangladesh. The poor yield of sugarcane is due to its low stalk density. In sugarcane, stalk population and cane yield are correlated specially in our sub-tropical cane growing areas (Irvine *et al.* 1980). The stalk population in sugarcane is essentially governed by type of soil, time of plantation and method of planting technique. During 1990-91 cropping season, a trial on different planting technique of sugarcane cultivation was conducted in a grower's field of Jaipurhat sugar mills zone. The trial was undertaken with a view to observe and demonstrate the better comparative performance of different sugarcane planting technique practised by various growers of the area. Four treatments on different planting techniques were used in the trial. The treatments were included as:

- T₁ : Spaced transplanting of sugarcane by polybag settling (PBS)
- T₂ : Spaced transplanting of sugarcane by two budded soil bed settling (SBS-2)
- T₃ : Spaced transplanting of sugarcane by one budded soil bed (horizontal) settling (SBS-1)
- T₄ : Conventional planting (control), 3-bud setts with end to end placement.

All plots were received NPKSZn at the rate of 125 kg N, 125kg P₂O₅, 110 kg K₂O, 33 kg S, and 4 kg Zn per hectare. The sugarcane variety Isd-16 was used as test crop. The sugarcane crop was transplanted/planted in main field during the November and harvested during mid January (14 month crop). Data on percent germination, percent establishment of settling in main field, number of tillers, tiller mortality, number of millable cane and yield of sugarcane were recorded. The tiller mortality was calculated as follows:

$$\text{Tiller mortality \%} = \frac{\text{Highest No. of tillers} - \text{No. of millable cane at harvest} \times 100}{\text{Highest No. of tillers}}$$

The data on tiller, tiller mortality (%), tiller in the month of August, millable cane and yield of sugarcane at harvest, as affected by different planting technique have been shown in the Table 1.

Table 1. Effects of different planting technique on yield and yield contributing parameters of sugarcane.

Treatments		No. of tillers in May (10^3 ha^{-1})	No. of tillers in August (10^3 ha^{-1})	Tiller mortality (%)	No. of millable cane at harvest (10^3 ha^{-1})	Cane yield (TCH)
T ₁	Spaced transplanting of sugarcane by polybag settling (PBS)	229.6a	140.1a	50.3	114.0a	152.8a
T ₂	Spaced transplanting by two budded soil bed settling (SBS-2)	206.0ab	130.0ab	48.9	105.3ab	148.4a
T ₃	Spaced transplanting by single budded soil bed (horizontal) settling (SBS-1)	176.4b	126.1b	44.2	98.5b	133.0b
T ₄	Conventional planting (end to end sett placement)	97.9c	83.4c	22.2	76.2c	110.3b

Figures accompanied by the same letters do not differ significantly at 5% level as per DNMR test.

It is seen from the Table 1 that spaced transplanting of sugarcane by polybag raised settling (PBS) produced significantly the highest number of tillers in the months of May ($229.6 \times 10^3 \text{ ha}^{-1}$), tillers in the August ($140.1 \times 10^3 \text{ ha}^{-1}$), millable cane at harvest ($114.0 \times 10^3 \text{ ha}^{-1}$) and yield of sugarcane (152.8 TCH) over single budded soil bed (horizontal) settlings and control. The similar results were also obtained by Rahman *et al.* (1993). It is also revealed that higher the number of tiller produced the higher number of millable cane although it caused higher percentage of tiller mortality. Matin *et al.* (1989) also found the higher tiller mortality in all types of STP cane over conventionally planted cane.

It may be concluded that spaced transplanting technique was found superior over conventional planting method in producing yield and yield contributing factors of sugarcane. Rahman *et al.* (1994) also observed that transplanted sugarcane showed highly positive effect compared to conventionally planted sugarcane. However, the spaced transplanting of sugarcane by two budded soil bed settling was found superior to that of single budded settling in respect of tiller, millable cane and yield. Therefore, it may be concluded that higher yield of sugarcane could be obtained through using spaced transplanting technique in sugarcane cultivation in Jaipurhat areas.

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