

The Potential of Slip Settling (Rayungan) as Planting Material

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The average yield of sugarcane in Bangladesh is reported to be around 45 ton per hectare indicating a low level of productivity of this crop per unit area. Considerable amount of work has been done elsewhere on various agronomic aspects pertaining to yield contributing factors and yield components of sugarcane (James, 1971 ; mariotti, 1971 ; Matherne, 1971 ; Kanwar and Sharma, 1974 ; Tang, 1977). The major consensus has been that under average agronomic management, the yield of sugarcane is positively correlated with the number of millable stalks and unit stalk weight (Matherne, 1974 ; Khairwal and Babu, 1975 ; Irvine, et al 1980). The major cause of poor yield of sugarcane in Bangladesh is likewise attributed to the insufficient number of millable stalks resulting from gappy germination and poor nutritional management. In recent years, considerable amount of attention has been given towards different planting practices viz, spaced planting, spaced transplanting (STP) of seedlings etc. but virtually no work has so far been done in Bangladesh on the potentiality of slip seedlings (Rayungan*). The present investigation was undertaken to examine the relative merit and potential of planting sprouted slip as compared to conventional planting of three-eyed setts. The trial was conducted at the experimental farm of the Sugarcane Research & Training Institute (SRTI) with the clone Co. 1158. Both the sprouted slips and three-eyed conventional setts were planted in December, 1987 in one-meter apart trenches. Since the soil was very dry, irrigation was provided after planting to ensure germination of setts and establishment of the slips. Weeding, mulching and fertilization (152 kg N, 125 kg P_2O_5 and 110 kg K_2O per hectare) were done as per normal practice. Data on germination/establishment, plant height, growth rate, plant population, number of millable stalks, yield of cane and sugar were collected and statistically analysed following a paired t-test where appropriate.

The establishment of slips was very satisfactory (99%) as against 38% germination of bud obtained from conventional planting. The plant height, growth rate and plant population recorded in the month of June were higher in transplanted slips than in conventional planting (Table 1).

It was further observed that the initiation of primary tillers arising from the basal joints of the slips was detectable at 25 DAP (days after planting). Crop raised from the slips gave significantly higher yield accompanied by higher number of millable stalks per unit area as presented in Table 2.

This preliminary study was conducted at a very marginal level of management; but still it demonstrated considerable physio-agronomic merit and potential of slip as planting material for obtaining higher yield of sugarcane. Under the same level of management and

*Rayungan refers to a method of raising sugarcane planting material (slip settling) by developping sugarcane stalks which is widely used in Indonesia.

Table 1. Germination, plant height, elongation growth rate and plant population of slip settling and conventionally planted sugarcane (clone Co. 1158).

Method	Germination/ establishment (%)	Plant height (cm)	Elongation growth rate (cm day ⁻¹)	Plant population (x10 ³ ha ⁻¹)
Slip Settling	99.22	182.00*	1.13*	144.12*
Conventional	38.41	164.00	0.86	119.85

*Indicates statistically significant difference at $\alpha=0.05$

Table 2. The number of millable stalks and yield of cane and sugar obtained from slips and conventionally planted sugarcane (clone Co. 1158).

Method	Millable stalks (x10 ³ ha ⁻¹)	Yield	
		TCH	TSH
Slip Settling	131.79*	94.95*	8.86*
Conventional	94.47	68.60	6.84

*Indicates statistically significant difference at $\alpha=0.05$

seed usage, about 26 tons of more cane was produced per hectare. The gappiness in cane field, which is considered one of the major causes of poor yield of cane in Bangladesh, can be effectively controlled in this method. Moreover, the early-tiller-initiation behaviour of the slip is likely to contribute to higher number of millable stalks and ultimately higher yield.

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