

Effects of Lodging on Cane Quality

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Lodging of sugarcane occurring due to natural hazards and shallow planting causes considerable yield reduction and deterioration of quality. Yield loss affects cane growers while quality loss affects the sugar mills. Investigations on cane yield loss and other morphological parameters have been carried out in Indian (Singh and Singh, 1984; Sharma and Khan, 1984); but, information on the quality is lacking. In Bangladesh, not much work has been done to quantify the effects of lodging on cane quality. An experiment was therefore, conducted at Sugarcane Research & Training Institute farm with a commercial variety L.Jaba-C during August to December, 1986. In the 1st week of August, canes were artificially lodged. Cane samples were randomly collected and analysed in respect of reducing sugars, purity and recovery on the day 0, 15, 30, 45, 50 and 65. The samples collected on the day lodging was effected is considered 'day-0'. The data were statistically analysed.

The results of the experiment presented in the Tables 1 and 2 reveal that purity and recovery are significantly higher in erect canes compared to lodged canes. The reducing sugars percent was also found higher in the lodged canes than in the erect canes although the difference was insignificant. Table 2 shows that the reducing sugars (RS) content is higher in lodged cane than in erect cane; however, the level of RS decreases with time (the duration of lodging).

Table 1. Effect of lodging on purity, recovery and reducing sugars

Treatments	Parameters		
	Purity (%)	Recovery (%)	Reducing Sugar (%)
Lodging	80.80**	6.90*	1.18*
Erect (Check)	84.40	7.73	0.97

** Significant at 1% level.

* Significant at 5% level.

Table 2. Effect of Post-lodging duration on purity, recovery and reducing sugars.

Post-lodging duration (d)	Parameters					
	Reducing sugars(%)		Recovery(%)		Purity(%)	
	Erect	Lodging	Erect	Lodging	Erect	Lodging
0	1.83	1.83	5.20	5.20	73.77	73.77
15	1.61	1.96	6.30	5.38	79.16	74.51
30	1.22	1.73	7.10	5.76	84.36	78.33
45	1.04	1.27	7.58	6.71	84.99	80.88
50	0.85	0.92	8.76	7.60	87.45	82.29
65	0.23	0.40	9.15	8.47	87.49	83.28
Mean	1.13	1.35	7.34	6.52	82.87	78.84

Table 2 also shows that purity as well as recovery percent gradually increased in both erect and lodged canes but the rate of increase was found lower in the lodged canes. Perhaps, the decrease in reducing sugars and increase in the purity were due to maturity process of canes, and resulted in gradual increase in recovery in both the erect and lodged canes. The low level of recovery in lodged cane could be attributed to restricted photosynthesis due to mutual shading of the leaves. This is in agreement with the finding of Parthasarathy and Rao (1983) who reported that the magnitude of deterioration of cane quality depends on the degree of lodging. Translocation and accumulation of sucrose might be disturbed and increase invert sugar contents in lodged canes. Lodging also leads to increase fibre content of the canes which may affect the sugar recovery. Besides, side shoots are encouraged in the lodged canes due to loss of apical dominance which utilizes reserved sugar available in the canes. The above results suggest that there could be some other external and internal factors responsible for the deterioration of cane quality which deserves further investigations in the future.

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