

Performance of Advanced Potato Clones as Intercrop with Sugarcane

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Sugarcane is a long duration crop usually requiring 10-14 months to mature under the agroclimatic conditions of Bangladesh. During this long period, the poor farmers practice intercropping with sugarcane in order to raise overall crop productivity and to increase their income. Therefore, growing of wintercrops with sugarcane as intercrop is becoming very popular to avoid competition between crops (Kanwar, 1975; Agarwal and Mathuria, 1976; Rahman et al. 1978). Among all inter crops growing with sugarcane potato has been found profitable by majority of the investigators at various places (Imam et al, 1982). They reported increase in net profit varied from 29 to 68 percent (Kanwar, 1975; Imam et al, 1982; Hossain, 1984). In the recent past, it has been seen that among all the potato varieties/clones Kufrishinduri showed better performance as intercrop with sugarcane (Anon. 1981). Besides Kufrishinduri, some other modern varieties/clones of potato are grown by the farmers as intercrop with sugarcane. Therefore, an experiment has been conducted during 1987-88 crop season at SRTI farm for evaluating the performance of different potato varieties/clones to find out the most potential varieties/clones suitable for intercropping with sugarcane.

Six different varieties/clones of potato such as Kufrisinduri, Kufrilalima, Cardinal, clone 720088, clone 800224 and local were tested with sugarcane variety Isd-16. The experiment was laid out in a randomized complete block design with three replications. Weeding, mulching, fertilization and irrigations were done as per normal practice. Pests and diseases were controlled by mechanical and chemical methods. Data on tillers was taken at optimum plant population stage attaining in the month of May. The data recorded on sugarcane and potato are summarised in the Table 1. All the data were analysed statistically following the Dunkans New Multiple Range test. The adjusted yield of sugarcane was found out by adding the sugarcane equivalent yield of potato concerned with the yield of sugarcane of the plot.

Data on tillering showed that purestand cane and cane intercropped with Kufrisinduri performed statistically equally well and producing the highest tiller numbers of 130×10^3 /ha. Besides this, potato variety Kufrilalima and local variety showed identical responses in tillering of sugarcane indicating similar influence of Kufrilalima and local potato varieties on the tiller density of sugarcane. Further, clone 800224 exerted a higher negative effect on tillering of sugarcane. All the potato varieties/clones except Kufrisinduri significantly reduced the tillering of sugarcane when intercropped compared to the sole cane. Data on mean cane height showed that cane intercropped with potato did not influenced significantly. However, potato variety Kufrisinduri and clone 720088 induced higher stalk height of cane (2.6m) when intercropped with cane

Table 1. Performance of advanced potato clones/varieties as intercrop with sugarcane during 1987-88.

Treatments		Tillers (000/ha)	Mean height of cane (m)	No. of millable canes (000/ha)	Yield of cane (t/ha)	Yield of potato (t/ha)	Adjusted yield (t/ha)
T ₁	Pure stand STP cane	130.0 a*	2.5 a	103.7 d	63.2 c	—	63.2 c
T ₂	STP cane + Kufirisinduri	130.0 a	2.6 a	120.0 a	73.5 a	5.6 a	105.2 a
T ₃	STP cane + Kufrilalima	126.9 b	2.4 a	97.1 c	53.3 c	4.3 c	77.7 d
T ₄	STP cane + clone 720088	123.3 c	2.6 a	115.7 b	70.8 b	5.0 ab	99.1 b
T ₅	STP cane + clone 800224	120.0 d	2.3 a	109.8 c	72.2 ab	3.4 c	91.4 c
T ₆	STP cane + local Potato	125.3 bc	2.2 a	111.4 c	58.9 d	3.3 c	77.0 d

* Figures accompanied by similar letters donot differ significantly as per DNMR test at 5% level.

compared to the purestand cane (2.5m). Number of millable cane count revealed that significantly the highest number of millable canes ($12 \times 10^3/\text{ha}$) were produced in the treatment where cane was intercropped with Kufirisinduri followed by cane + Potato clone 720088 ($115.7 \times 10^3/\text{ha}$). The number of millable canes when intercropped with clone 880224 and local potato variety were at par ($109.8 - 111.4 \times 10^3/\text{ha}$) and statistically lower compared to the cane intercropped with Kufirisinduri variety. Significantly the lowest number of millable canes ($97.1 \times 10^3/\text{ha}$) were obtained where the potato variety kufrilalima was intercropped with cane compared to the purestand cane. Kufrilalima seriously affected the sugarcane resulting into lower number of millable stalk production. Minimum Adverse effect of Potato on tillering and millable cane production has also been reported elsewhere (Bhel and Narwal 1977; Anon, 1979; Bose, 1976). Yield of sugarcane was significantly affected due to different potato varieties/clones. Significantly the highest cane yield of 73.5 t/ha was obtained when intercropped with kufirisinduri compared to the sole cane. Potato clone 800224 also showed statistically identical response on the yield of cane. The lowest cane yield of 53.0 t/ha was recorded where cane was intercropped with kufrilalima, potato variety indicating the severe detrimental effect of this potato variety on cane yield compared to the sole cane. This lower number of cane yield was possibly due to lower number of millable stalks. The higher yield of cane by intercropping with potato variety kufirisinduri has also been reported earlier (Anon; 1981). Among all the potato varieties kufirisinduri gave significantly the highest yield (5.0-6.0 t/ha) followed by clone 720088 (5.0 t/ha) where as the potato yield obtained from clone 800224 and local variety were statistically at par (3.3 and 3.4 t/ha) and was the lowest among the tested varieties/clones of potato.

Data on adjusted cane yield further indicated that intercropping of potato variety kufirisinduri with sugarcane invariably gave the highest adjusted cane yield of 105.2 t/ha

compared to other potato clones. Significantly the lowest adjusted yield of 77.7 t/ha was obtained where kufirilalima potato variety was intercropped with cane. In light of the results obtained in this experiment it could be concluded that potato variety kufirisinduri performed better and may be recommended for intercropping with sugarcane profitably in the Ganges River Flood Plain soils.

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