

Comparative Economics of Sugarcane with Intercrops in Jaipurhat Sugar Mills Area

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ABSTRACT

A study on relative profitability of four intercrops such as potato, mustard, onion and Lentil with sugarcane was carried out in Jaipurhat Sugar Mills area in 1991. Of all the intercrops studied, the sugarcane + potato was found to be superior in respect of net return per hectare, per manday and per taka of capital invested. The sugarcane + mustard may be the second choice, The study reveals that sugarcane + potato intercropping is suitable for rich farmers whereas the poor may cultivate mustard as intercrop since it requires less capital.

INTRODUCTION

Sugarcane is the second most important cash crop which is grown in almost all districts of Bangladesh. As a long duration crop. farmers have to wait 10-14 months to get the return of their investment in sugarcane field. Particularly poor cane growers can not afford to keep their land engaged with a single crop for such long period, and as such sugarcane growers used to grow one of two short duration crops as intercrops in between two rows of sugarcane.

Sugarcane is planted by keeping adequate space in between two rows. This space remains vacant until full sugarcane canopy development and short duration crops can be grown in the vacant space without affecting much the yield of sugarcane. Various studies showed that sugarcane cultivation with inter crop was more profitable compare to sole sugarcane cultivation (Razzaque *et al.* 1978; Hossain, 1984.; Imam and Hossain, 1984; Kabir,1988). However, few comparative economic studies have been done to assess the profitability of sugarcane with different intercrops in the Jaipurhat Sugar Mills area. The present study is an attempt to analyse the comparative economics of potato, mustard, onion lentil as intercrops with sugarcane in Jaipurhat Sugar Mill areas.

MATERIALS AND METHODS

The study was conducted in Panchbibi thana of Jaipurhat district. Four intercrops such as potato. mustard, onion and Lentil were selected for this study. For each inter

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crop 25 growers totaling 100 growers were selected for the present investigation. Data were collected through personal interview using predestined questionnaire during November to December, 1991. Frequent visits were made to get the required information. Due care was given to the convenience of the farmer in fixing time for interview so that he could feel easy and free for crop production.

Four types of intercropping such as sugarcane+potato, sugarcane+mustard, sugarcane+onion and sugarcane+lentil are compared in terms of yield, cost of cultivation, net return, labour and capital requirements, etc.

RESULTS AND DISCUSSION

Yield, gross and net return, cost of production and benefit-cost ratio are shown in the Table 1. The yield of sugarcane is the highest for sugarcane+potato and the lowest for sugarcane+mustard. This indicates that potato as intercrop increases and mustard decreases the yield of sugarcane. Sinha et. (1990) found that potato intercropped with sugarcane produced synergistic effect on cane yield. On the other hand, irrigation is not applied for mustard though it need more moisture (Miah, 1992). Mustard competes with sugarcane for moisture, resulting yield loss of sugarcane.

Average cost of production per hectare is the highest for sugarcane+potato and this is because of higher seed and fertilizer cost of potato. That means farmers need more capital for producing potato as intercrop with sugarcane. However, the production cost of sugarcane for all types of intercropping is similar.

Among all the intercropping, sugarcane+potato receives the highest gross as well as net return in the study area (Table 1).

Though sugarcane+mustard has the lowest gross return but its net return is the second highest due to lower cost of production. On the other hand higher cost of production results the lowest net return for sugarcane+lentil intercropping. Both in terms of net return and benefit-cost ratio sugarcane+potato emerges as the most profitable intercropping followed by sugarcane+mustard. This finding is similar to that of Imam et al. (1982). The benefit-cost ratio for sugarcane-onion is the lowest. Among the intercrops, benefit-cost ratio is the highest for mustard followed by lentil due to higher price of these crops.

In order to know the employment generation and efficiency of labour under each intercropping, total mandays of human labour employed and the return per manday of labour have been calculated for each intercropping, and are presented in the Table 2. Net return per manday show the efficiency of labour used, while labour requirement indicates labour intensiveness. It is evident from the Table 2 that sugarcane+lentil is the most labour intensive intercropping followed by sugarcane+onion. Net return per man-day was the highest (Take 69.8) on which is followed by. Thus seeing the efficiency of labour use, sugarcane+potato cropping system comes out to be more desirable in comparison to any other system.

Table 1. Cost and return per hectare from different intercropped system.

Item	Sugarcane +potato	Sugarcane +mustard	Sugarcane +onion	Sugarcane +lentil
A. Yield (Quintal/ha.)				
Main crop	698.0	563.0	617.0	574.6
Intercrops	61.1	6.1	22.5	4.7
B. Price (Tk./quintal)				
Main crop products	72.4	72.4	72.4	72.4
Intercrops	405.6	1467.6	486.5	1780.1
C. Gross Return (Tk.)				
Main crop*	53141.9	42995.7	47756.6	43994.0
Intercrops	24778.2	9837.4	10964.6	9174.8
Total	77920.1	52833.1	58721.1	53168.8
D. Cost of Production (Tk.)				
Main crop	32350.1	30520.6	34414.6	32427.8
Intercrops	10674.2	2578.6	4910.6	2575.3
Total	43024.3	33099.2	39325.2	35003.1
E. Net Return (Tk.)				
Main crop	20791.8	1247.2	13342.0	11566.3
Intercrops	14104.0	7258.8	6054.0	6599.5
Total	34895.8	19733.9	19396.0	18165.7
F. Benefit-Cost Ratio				
Main crop	1.64	1.41	1.39	1.36
Intercrops	2.32	3.81	2.23	3.56
Total	1.81	1.60	1.49	1.52

* Gross return of main crop includes gross returns obtained from main product and by-products of main crop.

Table 2. Labour requirement in man-days per hectare and net return per man-day.

Cropping system	Net return (Tk.)	Total labour (Man- days)	Net return/ man-day (Tk.)
Sugarcane+potato	34895.9	500.5	69.8
Sugarcane+mustard	19733.9	412.9	47.8
Sugarcane+onion	19396.0	550.3	35.3
Sugarcane+lentil	18165.8	592.8	30.6

Table 3. Capital requirement and rate of return on capital.

Cropping system	Capital requirement (Tk./ha)	Net return (Tk./ha)	Net return per taka of capital invested
Sugarcane+potato	27529.0	34895.9	1.27
Sugarcane+mustard	19972.7	19733.9	0.99
Sugarcane+onion	23002.3	19396.0	0.84
Sugarcane+lentil	18902.5	18165.8	0.96

Capital requirement refers to all working capital that are actually incurred in cost for the production of crops. The Table 3 shows that capital requirement and rate of return on capital under different inter cropping. The table indicates that sugarcane+potato intercropping gives the highest net return (Taka 1.27) per taka of capital investment. Next to sugarcane-potato, the maximum rate of return on capital (Taka 0.99) comes from sugarcane+mustard.

The farmers with sufficient capital should select potato as intercrop with sugarcane as the net return per hectare, per man-day as well as per taka of capital invested is the highest. On the other hand, poor farmers may grow mustard as intercrop because it requires less capital, and its net return per unit of labour employed also higher as compared to other intercropping except sugarcane+potato intercropping.

It is observed that due to paucity of capital farmers prefer mustard as intercrop with sugarcane in almost all zones of Jaipurhat Sugar Mills Ltd. Therefore, institutional credit may be made available to the growers so that they can grow potato as intercrop with sugarcane.

REFERENCES

- Hossain, A.H.M.D 1984. Intercropping with reference to sugarcane cultivation in Bangladesh. Unpublished M.Sc. thesis, Dept. of Agril. and Horticulture, University of Reading, U.K.
- Imam, S.A.; Ali, A. and Razzaque, M.A. 1982. Performance of intercropping with sugarcane under several crop combinations. *Bangladesh J. Sugarcane*, 4: 32-41.
- Imam, S.A. and Hossain, A.H.M.D. 1984. Economics of intercropping leguminous crops with sugarcane. *Bangladesh J. Sugarcane*, 6: 19-23.

- Kabir, M.H. 1988. Economics of intercropping with sugarcane in selected areas of North Bengal Sugar Mills Zone. *Bangladesh J. Sugarcane*, 10:81-86.
- Miah, M.A.M. 1992. An Economic Study on Sugarcane Cultivation With Several Intercrops in Jaipurhat Sugar Mill Areas. Unpublished M.Sc. Thesis, Dept. of Agril. Economics. Bangladesh Agricultural University, Mymensingh.
- Razzaque, M.A.; Mannan, M.A.; Imam, S.A. and Ali, A. 1978. Potential of Some Winter Crops for intercropping With Sugarcane,. *Indian J. Agric. Sci.*, 48 : 324-327.
- Sinha, U.P. and Jha, K.C. 1990. Intercropping of Potato with sugarcane in Relation to Row Arrangement and Nitrogen Levels. *Indian J. Agric. Sci.*, 60: 317-321.