Bangladesh J. Sugarcane, 6 : 59—62 July, 1984

Effect of Farm Size and Tenure Classes on Sugarcane Production in Thakurgaon Sugar Mills Zone

M. H. Kabir,
Sugarcane Research and Training Institute,
Ishurdi, Pabna, Bangladesh.

ABSTRACT

The effect of tenancy and farm size on sugarcane yield was studied during 1981-82 season. The results revealed that there were no major differences in yield among the tenure classes. However, the part-operators obtained the highest yield. The medium sized farms were more productive.

INTRODUCTION

The existing farm size and tenancy play an important role in low level of productivity and under utilization of resources. (Myrdal, 1968). Studies were conducted in Bangladesh to determine the role farm size and tenancy on resource use and productivity (Zaman, 1973 ; Jabber, 1977 ; Hossain, 1973 ; Mandal, 1980 ; Talukder 1980). It was reported that production of farmers and farm areas falling into different tenure classes varied from crop within a single year. Input use also varied. Since no study was made on sugarcane, the present study was conducted during 1981-82 season to assess the impact of tenancy and farm size on productivity of sugarcane.

MATERIALS AND METHODS

The study was based on collection of data from 91 farm families during January 1981 - March 1982. The farms were selected from twenty five villages (eight villages under P.S. Thakurgaon, 13 villages under P.S. Pirgonj, one villages under P.S. Baliadangi, one village under P.S. Ranisankoil and two villages under P.S. Birgonj in the district of Dinajpur). Representative samples were selected.

The farm size has been defined as cultivated area which is composed of total hectares owned minus hectares rented out plus hectares rented in. Sample farms are divided into three size groups based on sugarcane cultivated areas (a) small farm (0-0.8094 ha.), (b) medium farms (0.8095-1. 6188 ha.) and (c) large farms (1.6189 ha. and above). Some decisive selection of respondents was however, necessary to assure representation from those categories that were important to the study. Thus an effort was made to select samples from one millzone areas depending on farm sizes and tenure classes. Using Spigel's (1961) methods to determine a normally distributed population it was found that a higher % of observations fell into the spread for both $\pm$one or two standard deviations suggesting that this sample was quite a good one. Farm survey technique was applied to collect data by 3-4 visits by the field investigators.

For working out the economics of sugarcane, various cost components of human labour (family+hired), animal power, seeds, manures, fertilizers, harvesting and transportation were recorded. Cost of inputs like seeds, manures, fertilizer and pesticides were computed on the basis of market prices. Cost of human labour (family+hired) was based on wage rate prevailing in a village on a certain date (Chowdhury and Ali, 1972). Cost of animal power was also computed on that basis. Cost of cane was estimated as Tk. 402.00/- m. ton. Intercrops were valued at prices the farmers obtained after sale. By-product values estimated as per farmer's guess or from the experience of actual buying and selling of by-products. Data were tabulated and analysed for scientific interpretation.

RESULTS AND DISCUSSION

Table 1 Shows that the size of farm consistently decreased from the tenure class of part - operators to that of pure - tenants.

Table 1. Possession of farm land by tenure classes.

Tenure classes	No. of farms (1)	Average in hectare/farm				Percentage	
		Farm land owned (2)	Farm land rented out (3)	Farm land rented in (4)	Farm land cultivated 5=2 - 3+4	Owned area rented out	Operated areas rented in
Part-operator	6	6.00	2.36	na	3.64	39.33	na
Owner-operator	64	3.53	na	na	3.53	na	na
Owner-tenant	19	0.91	na	0.44	1.35	na	32.59
Pure-tenant	2	na	na	0.62	0.62	na	100

na = not applicable.

The average operated area per part-operator was 3.64 hectares (Table 1). Pure-tenants operated area of 0.62 hectare could, by no means be considered as a viable cultivated area. It is evident that part-operators rented out 39.33% of their own land whereas the area rented in 32.59% of the operated area of the owner-tenant farms indicating that degree of tenancy was substantial from both ends.

Owner-tenant farms used the highest number of labour (man-days) followed by part-operators, owner-operators and pure-tenant farms. Part-operators used substantial amount of hired labour (Table 2).

Table 2. Labour use by tenure classes.

Tenure classes	Average per hectare Man - days				Cost (Taka)/ ha.
	Family	Hired	Total	Hired as % of Total	
Part - operator	65.99	101.28	167.27	60.54	3211.94
Owner - operator	107.92	54.97	162.89	33.74	3165.13
Owner - tenant	169.54	30.96	200.50	15.44	3642.34
Pure - tenant	75.00	47.50	122.50	38.77	1965.00

The differences in yield between tenures were not substantial. However, highest yield (36.75 MTH) was obtained by the part - operators followed by owner - tenant (36.08 MTH), owner - operators (30.61 MTH) and pure - tenants (29.94 MTH) respectively.

Gross cost of sugarcane was the highest for part - operator (Tk. 12279.87/ha). It was Tk. 7554.12/ha for pure - tenants. Part - operators produced the highest benefit cost ratio 1.59: 1.00. Pure - tenants were the loosing concern due to lower production and sharing of the products by the land owner (Table 3).

Table 3. Gross cost and net returns of sugarcane by different tenure classes.

Tenure classes	Average per hectare							Yield of sugarcane (m.tons/ha)	Net return (Tk./ha)	Benefit cost ratio.
	Gross return				Gross cost					
	Sugar-cane	Intercrop	By products	Total	Sugar-cane	Inter-crop	Total			
Part - operator	17218.74	4304.94	109.37	21633.05	12279.87	1283.00	13562.87	36.74	8070.18	1.59:1.00
Owner - operator	13244.82	5471.65	105.50	18821.97	12115.18	2429.61	14544.79	30.61	4277.18	1.29:1.00
Owner - tenant	12014.95	5158.33	108.12	17281.40	11908.39	3821.48	15729.87	35.08	1551.53	1.09:1.00
Pure - tenant	6017.92	NA*	125.00	6142.92	7554.12	NA*	7554.12	29.94	-1411.20	0.81:1.00

NA* - not applicable.

Comprison was made between "all farms" clumped together, irrespective of tenure classes and "all owner-farms only". In case of "all farms" medium farms had 15.80% higher yield than all large farms but it was not significantly different (Table 4). The result also revealed that in case of "owner farms only" the medium farms had 19.90% higher yield than all large farms (Table 4). The medium sized farms produced the highest yield.

Pure-tenant group (share cropping teancy) was inefficient. Part-operators were more productive than all other tenure classes.

Table 4. Yield obtained by different farm size groups.

Productivity	Small (1)	Medium (2)	Large (3)	Percentage difference		
				Medium with small (2-1)	Medium with large (2-3)	Large with small (3-1)
			All Farms			
Average yield (MT/ha)	34.36	36.03	31.09	+4.80	+15.80	- 9.50
			All owner farms			
Average yield (MT/ha)	34.49	35.70	29.76	+3.50	+19.90	- 13.70

ACKNOWLEDGEMENTS

The author takes the oportunity to express his whole hearted gratitude and indebted to Dr. M. Shahjahan, Director, Sugarcane Research & Training Institute for his constant interest, guidance, co-operation and encouragement for conducting the research work. The author is also grateful to Dr. M.A. Hamid Miah, Principal Cane Entomologist, SRTI for correction of the manuscript. Credit goes to Mr. Md. Giashuddin for typing the manuscript.

REFERENCES

Chowdhury, S.D. and Ali, M.A. 1962. Report on survey of cost of production of jute in East Pakistan, 1958. Dhaka. Pakistan Centre Jute Committee. p. 6.

Hossain, M. 1973. Farm size and productivity in Bangladesh agriculture. A case study of phulphur farms. New series no. 14, Bangladesh Institute of Development Studies, Adamjee Court, Motijheel Commercial Area, Dhaka-2. pp. 1-45.

Jabber, M.A. 1977. Relative productive efficiency of different tenure classes in selected areas of Bangladesh. *The Bangladesh Development Studies*, Adamjee Court, Motijheel Commercial Area, Dhaka-2, **1**: 16-50.

Mandal, M.A.S. 1980. Farm size, tenure and productivity in an area of Bangladesh. *Bangladesh J. Agric. Econ.*, 3 (2) : 21-42.

Myrdal, 1968. Asian Dramma : An Enquiry into the poverty of Nations. London. Allenlane. The Penguin Press. pp. 1959-1960.

Spigel, M.R. 1961. Schaun's outline of Theory and problems of statistics, Mcgrawhill Book Company, New York, St. Lonit, San Francisco, Toronto, Sydney. p. 72.

Talukder, R.K. 1980. Land tenure and efficiency in boro rice production in an area of Mymensingh District. *Bangladesh J. Agric. Econ.*, 3 (2) : 43-55.

Zaman, M.R. 1973. Share cropping and economic efficiency in Bangladesh : *The Bangladesh Economic Review*, **1** (2) : 149-172.