Bangladesh J. Sugarcane, **12-15** : 31-35 July, 1993

An Assessment of Knowledge Gap on STP Cane of Sugarcane Growers at Mongalbari Subzone under Joypurhat Sugar Mills

S. K. Pal, M. K. Bashar, K. M. M. Islam[1] and M. K. Ali
Sugarcane Research & Training Institute,
Ishurdi, Pabna, Bangladesh.

ABSTRACT

A study was undertaken to findout the knowledge level of sugarcane growers of STP cane at Mongalbari subzone under Joypurhat sugarmills. The mean score of knowledge gap index was obtained 58.3 with a range from 6 to 96. Three independent variables were found highly significant and negative relationship to knowledge gap, which were extention contact, education and size of farm. The other variables such as age and family size were found insignificant. Age was found negatively, and family size was positively correleted with knowledge gap. Five variables contribute a total of 59.1 percent contributions, observed from multiple regression analysis, and extension contact alone contribute 38 percent observed in partial regression analysis.

INTRODUCTION

Sugarcane growers, the primary unit of sugarcane production should know the up-to-date production technology to obtain higher yield. In Bangladesh knowledge of growers on sugarcane production is very poor, and most of the sugarcane growes do not possess adequate production technology of sugarcane production. Because of poor knowledge on production technology, they obtain lower yield, and ultimately they become frustated and reluctant towards sugarcane production. Although the production technologies to produce 162 TCH of sugarcane (Ali *et. al.,* 1989) is available in the country, the present average production of sugarcane is only 43.03 TCH (BBS, 1987) due to lack of knowledge of growers on sugarcane production technologies because of poor extension work.

An effective extension programme for sugarcane production is used to be started with the knowledge level of growers where they stand. However, for proper planing of extension programme, it is necessary to have an understanding of the growers need, based on growers knowledge. An understanding of the relationship of the personal characters of individual, and their knowledge are also helpful to the planners and extension workers. Ahmed (1974) observed a strong positive relations between agricultural knowledge of the growers and their education, farm size, income, and extension contact. He also found age has no relationship with their agricultural knowledge. Baodgaonkar (1983) observed that the variable age was not related with knowledge, but there was significant relationship between education, annual income and knowlege of farmers. Alam (1974) found no relationship between family size and job performance of Union Assistants, whereas, Saha (1988) found a positive significant relationship between family size and education with the performance of contact farmers. However, he found no relationship with age, farm size and organizational participation. In respect of these view, the present study was undertaken to findout the knowledge gap

[1] Department of Agricultural Extension Education, BAU, Mymensingh.

on STP sugarcane growers and to findout the relationship between personal characteristics and the knowledge gap of sugarcane growers.

MATERIALS AND METHODS

The Sugarcane growers of Mongalbari subzone under Joypurhat Sugarmills was the population of the present study. Data were collected in a sample of 46 farmers selected randomly. A pretested interview schedule including simple questions were used to measure the knowledge of the growers.

Study variables

Dependent Variable : Knowledge gap on STP sugarcane was the dependent variable of the study which also packed with other related aspects. Knowledge gap was calculated both growerwise and practicewise by using the following formula :

$$\text{Knowlege gap index (K.G.I.)} = \frac{(E-O) \times 100}{E}$$

where, E = Expected maximum knowledge scores for all the practices per growers.

O = Obtained knowledge score for all the practices per growers.

Based on the techniques of STP cane a total of 14 questions were used. Hence, the expected maximum knowledge scores were 140 and the chance of a minimum was 'zero'. Thus, the possible K.G.I. was 0 to 140.

Independent variables : Five independent variables were studied.

(a) Age : Age of the farmers was defined as the period of time in years between his birth and the time of interview.

(b) Education : The development of knowledge, skill and attitudes towards a desirable direction by an individual farmer is the education. It was measured by the number of schooling years.

(c) Family size : Number of individuals belongs to the family of a grower, including dependents.

(d) Size of cane farm : The size of sugarcane farm was measured in hectare by using the following formula :

Farm size $= F^1 + F^2 + \frac{1}{2}(F^3 + F^4)$

where,

F^1 = Own sugarcane land,

F^2 = Sugarcane land taken as lease from others,

F^3 = Sugarcane land taken from others on borga system,

F^4 = Sugarcane land given to others on borga system.

(e) Extension contact : Extension contact of a sugarcane farmer was measured as the extent of exposure to different teaching methods for the production technology of sugarcane.

Statistical tools

Data computed, tabulated and analysed with statistical measures. For exploring relationship between knowledge gap and individual characteristics of growers. Correlation test was used to reject the null hypothesis. Multiple regression and step-wise partial regression were also done to findout the actual contribution of the significant variables.

RESULTS AND DISCUSSION

The individual characteristics of the growers were categorically arranged in the Table 1. From the table, it is observed that average age of the respondent is 33 and a minimum of 13 to maximum 56 with a standard deviation of 9.3. Education level was observed a minimum 5 years to 16 years with a standard deviation of 2.2 and a mean value of 10.2 years. Average family size was found 6.9 with a range of 4 to 18 and the standard deviation was 3.1. Average area of sugarcane farm was observed as small as 0.9 ha, and the range was 0.1 to 9 ha, with 1.2 standard deviation. Average scores of extension contact by the growers was 4.4. The range was 1 to 15 and the standard deviation was 3.3. Knowledge gap of STP of an individual grower was also observed, a range of 5 to 131 with a standard dveiation of 30.6 and a mean of 58.1.

Table 1. General background of the growers.

Independent variables	Minimum	Maximum	Mean	Standard deviation
Age	13.0	56.0	33.0	9.3
Family size	4.0	18.0	6.9	3.1
Education	5.0	16.0	10.2	2.2
Cane farm size	0.1	9.0	0.9	1.7
Extension contact	1.0	15.0	4.4	3.3
Knowledge gap index	6.4	96.4	58.3	22.0

Table 2. Correlation matrix between variables.

Variables	Age	Family size	Education	Cane farm size	Extension contact	Knowledge gap index
Age	1.000					
Family size	—0.075	1.000				
Education	—0.006	—0.157	1.000			
Cane farm size	—0.112	—0.119	0.149	1.000		
Extension Contact	0.120	—0.901	0.193	0.069	1.000	
Knowledge gap index	—0.015	0.039	—0.496**	0.374*	—0.591**	1.000

* = significant at 0.05 level, ** = significant at 0.01 level

To explore the relationship between knowledge gap index with the independent variables correlation test was used (Table 2). From the test, it was found that education, farm size and extension contact had a significant and negative relationship with knowledge gap. This findings were closely related with Ahmed (1974). Age was found insignificant, correlated negatively with knowledge gap and family size was found positive but insignificant relationship with knowledge gap. Hossain (1983) also found no relationship between age and family size of rice cultivators with their adoptors.

Table 3. Multiple regression analysis between independent variables and knowledge gap on STP cane.

Variables	Regression coefficient	Standard error	T-value
Age	0.008	0.244	0.032
Family size	-0.709	0.727	-0.975
Education	-3.741	1.063	-3.518**
Cane farm size	-3.803	1.335	-2.850**
Extension contact	-3.384	0.693	-4.883***
Constant	119.028		

R^2 = 0.591
F ratio = 11.537
** = significant at 0.01 level of probability
*** = significant at 0.001 level of probability.

Table 4. Step-wise partial regression analysis between significant independent variables and knowledge gap on STP cane.

Variables	Regression coefficient	Standard error	F-value	Partial R^2
Step-1				
Extension contact	-3.93	0.81	23.61	
Constant	75.56			
R^2 = 0.35				
Step-2				
Education	-4.01	1.11	13.04	0.233
Extension contact	-3.42	0.73	21.94	0.338
Constant	114.08			
R^2 = 0.50				
Step-3				
Education	-3.61	1.04	12.01**	0.223
Cane farm size	-3.68	1.30	8.01**	0.160
Extension contact	-3.34	0.68	24.29**	0.366
Constant	112.79			
R^2 = 0.56				

** = significant at 0.01 level of probability.

To find out the relative contribution of the significant variables, the multiple regression was done and shown in the Table 3. The multiple regression value (R^2 = 0.5905) indicated that five independent variables contributed jointly to the extent of 59.1 percentage of the variation in knowledge gap regarding the knowledge of STP cane production. The observed 't' values were found highly significant with extension contact, cane farm size and education. These three variables were again fitted in

partial regression equation. R^2 value was found 0.58, which shows that these three variables contributed 58 percentage of knowledge gap on STP sugarcane where 35 percent contribution was made only from extension contact. Fifty percent contribution were observed jointly through extension contact and education, and 58 percent contribution through extension, education and cane farm size. The findings give a clear indication that extension contact and education had a major role of knowledge gap on STP cane. Hence, emphasis should be given on that point to extend the technology in the field.

ACKNOWLEDGEMENTS

The authors feel highly indebtness to Associate Scientific Officer (Grade 1) and incharge, Joypurhat Substation, SRTI; and ACDO, Mongalbari Subzone, Joypurhat for their cordial response in collecting data.

REFERENCES

Ahmed, A. K. R. 1974. Agricultural knowledge of the Farmers. An unpublished M.Sc. (Ag. Ext. Ed.) thesis. BAU, Mymensingh.

Alam, M. S.1974. Relationship of Certain Social and Economic Characteristics of Union Assistants with their Job Performance. An unpublished M. Sc. (Ag. Ext. Ed.) thesis. BAU, Mymensingh.

Ali, M. Y.; Imam, S. A. and Ali, M. K. 1989. Ropa Akh Chash. (Publication No. 45), SRTI, Ishurdi, Pabna, Bangladesh. p. 12.

Baodgaonkar, S. S. 1983. Measurement of Farmers Knowledge and Factors Affecting the Adoption Behaviour of Groundnut Cultivations of uttara Kannada District of Karnataka State. Thesis Abstract (1984), Haryana Agricultural university, **10** (1-4) : 294.

BBS, 1987. Year Book of Agricultural Statistics. Bangladesh Bureau of Statistics, Dhaka, p. 128.

Hossain, M. A. 1983. Relationship of the Farmers' Characteristics with their Adoption of HYV Rice as Transplanted Aman and Other Related Aspects of Bhabakhali Union of Mymensingh District. An unpublished M.Sc. (Ag. Ext. Ed.) thesis, BAU, Mymensingh.

Saha, P. K. 1988. Performance of Contact Farmers under the Training & Visit System in Bera Upazila of Pabna. An unpublished M. Sc. (Ag. Ext. Ed.) thesis, BAU, Mymensingh.