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Effectiveness of Demonstration Plots Organized in Bangladesh: Farmers' Experiences

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Abstract

This article is based on findings of a Report Card Survey conducted by Transparency International Bangladesh (TIB). Limited number of farmers participated in different demonstration plots organized by the Chandpur Sadar Upazilla Krishi Office. These plots were found to be organized mainly by farmers having prior experiences to do so. These farmers had much better income and land holding status than their counterpart who did not organize demonstration plots. During demonstration plots, farmers received quality input and effective advice services from the office staff. Their motivation level towards the demonstration plot technology and willingness to practice the same in future was quite high.

Keywords: *Krishi Office, demonstration plots, experiences*

Introduction

Bangladesh is primarily an agrarian country. Since attaining independence, the country has made enormous progress towards food security. Increase in agricultural production through the widespread adoption of Green Revolution Technology, modern irrigation practices and development of market infrastructure have ushered in an era of food self-sufficiency, particularly in case of rice.

During fiscal year 2005-06, agricultural sector contributed 21.77% of the total national GDP. Growth rate of this sector was 4.67% and 51.7% of the total national workforce was employed in this sector in the above mentioned period. Among different sub-sectors, crop sector demonstrated 0.15% growth, where as for livestock and fisheries this was 7.23% and 5.09% respectively (BER, 2006). Despite phenomenal growth in the sector, major challenges await for the country as the sector-particularly crop sub-sector, suffers from low land and labour productivity. To attain PRSP set average growth rate of 4.5%, there is no option but to raise the level of its productivity and this can only be raised through use of modern agricultural practices and inputs. Demonstration plots organized by *Krishi* Office have a crucial role to play in this regard. These plots are very much important for technology dissemination, improvement of farmer's production practices and hence for development of farmer's socio-economic status. Through these plots, *Krishi* offices disseminate latest research findings to the farmers and collect local learning, experiences and problems for the researcher

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and policy makers and as a result research-extension linkage is established. Effectively organized demonstration plots will not only increase food security but also can positively contribute in poverty reduction.

Effectiveness of any programme should be evaluated from users' point of view. This is especially important for programmes like demonstration plot, as mass involvement in these plots is at greater extent. Without knowing farmers' perception and level of understanding and expectation, these plots are hard to design and implement successfully. The present study is an attempt to identify strength and weakness of the Chandpur Sadar Upazilla Krishi Office (CSUKO) to organize demonstration plots from the experiences of the farmers. The study proceeded focusing on the following objectives:

1. To identify socio-economic status of the farmers who were involved with demonstration plots;
2. To identify effectiveness of demonstration plots from the experiences of the farmers; and
3. To identify the nature and extent of mismanagements and/or irregularities that the farmers experienced regarding demonstration plots organized by the office.

Methodology

To attain the objectives of the study multi-stage random sampling technique was employed Different stages involved in sampling were selection of agricultural blocks (administrative working area of a *krishi* office), selection of villages and selection of farmers. A total of 549 randomly selected farmers were interviewed during the survey. Of them, 72 farmers organized demonstration plots (plots organized by farmers with technical and some input support from agriculture office to orient local farmers to new technologies) during March 2005 to March 2006. Among others, 387 farmers were from blocks where demonstration plots were organized and the rest 90 farmers were selected from blocks where demonstration plots were not organized. In the article the 72 farmers who organized demonstration plots during March 2005 to March 2006 were identified as demonstration plot organizers whereas others were identified as other farmers. The survey was conducted during July '06 to August '06 using a semi-structured interview schedule.

Both the statistical and tabular analysis were used for the study. Most of the findings were presented by using frequency and arithmetic means. Chi-square test was used to explore the differences between the selected characteristics of the farmers. The contingency co-efficient (Cramer's V) was computed to measure the strength of relationship between the variables under Chi-square test. Throughout the study, 5% level of probability has been used as the basis of statistical significance.

Findings and Discussion

Socio-economic status of the farmers

Annual average income of the farm families was estimated to be Tk. 74463. Families involved in demonstration plot organization had 25.97% higher income than that of families who did not organize demonstration plots. Farmers were earning 35.09% of their total income from crop production activities. Compare to this, share of other sources was not notable (Table 1).

Table 1. Farm families' annual average income (Tk.)

Income sources	Demonstrations plot organizers	Other farmers	All farmers
Crop production	40990 (49.37)	25448 (38.62)	33219 (44.61)
Fisheries	6104 (7.35)	4777 (7.25)	5441 (7.31)
Livestock & poultry	6644 (8.00)	5347 (8.11)	5995 (8.05)
Business	9861 (11.88)	8653 (13.13)	9257 (12.43)
Agricultural labour	1556 (1.87)	2755 (4.18)	2155 (2.89)
Day labour	542 (0.65)	2633 (4.00)	1587 (2.13)
Ricksha/van puller	262 (0.32)	1758 (2.67)	1010 (1.36)
Salary earned	3675 (4.43)	4118 (6.25)	3897 (5.23)
Other sources	13392 (16.13)	10412 (15.80)	11902 (15.98)
Annual average	83026 (100.00)	65901 (100.00)	74463 (100.00)

Note: Figures in the parentheses are share of total income

Following Bangladesh Economic Review 2006, farm families were divided into two groups: poor (families having per head per month income less than Tk. 594.60) and non poor (families having per head per month income more than Tk. 594.60). Among the farm families, 48.45% were poor. Less than one-third of the demonstration plot organizers (29.17%) belonged to poor families, whereas incase of others more than half of the farmers (51.36%) belonged to poor families (Figure 1).

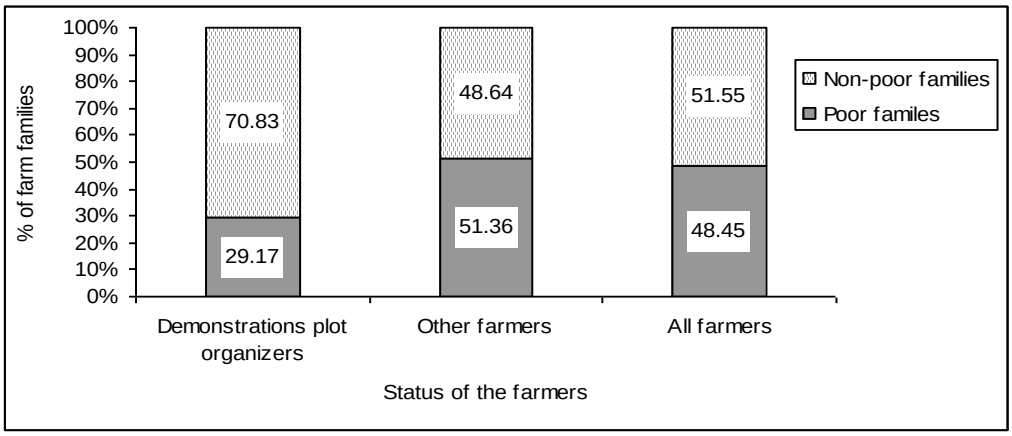

Figure 1. Distribution of the farm families according to their income

As like the DAE, farmers were classified as landless (less than 0.2 ha), marginal (0.21 to 0.4 ha), small (0.41 to 1 ha), medium (1.1 to 3 ha), and large (more 3 ha) on the basis of their land holding. Among the surveyed farmers, 47.18% were landless. It was observed that percentage of farmers was drastically reducing as we move along groups having better land holding status. Here the demonstration plot organizers had comparatively better status than the non-organizers. But it cannot be said that the office has biasness towards any particular category of farmers, as insignificant relationship was observed between farmer's land holding status and experiences of organizing demonstration plots (Table 2).

Table 2. Distribution of the farmers according to land ownership

Farmer's status	Classification of farmers					
	Landless	Marginalized	Small	Medium	Large	Total
Demonstration plot organizers	24 (33.33)	16 (22.22)	23 (31.94)	8 (11.11)	1 (1.39)	72 (100)
Demonstration plot non-organizers	235 (49.27)	106 (22.22)	100 (20.96)	30 (6.29)	6 (1.26)	477 (100)
Total	259 (47.18)	122 (22.22)	123 (22.40)	38 (6.92)	7 (1.28)	549 (100)

Chi-square=8.842, P-value=0.065, Cramer's V=0.127
Note: Figures in the parentheses are in percentage

Farmer's experiences of organizing demonstration plots

During 2001 to 2006, 84.52% of the surveyed farmers were not involved in demonstration plots organization. No notable difference in experiences of farmers having different land status here exists (Table 3).

Table 3. Number of demonstration plots organized by farmers in last five years

Number of plots	Farmers' status on basis of land holdings				
	Landless	Marginal	Small	Medium & large	Total
No plots	229 (88.42)	104 (85.25)	98 (79.67)	33 (73.33)	464 (84.52)
Only one plot	18 (6.95)	8 (6.56)	9 (7.32)	8 (17.78)	43 (7.83)
Two to five plots	11 (4.25)	9 (7.38)	16 (13.01)	3 (6.67)	39 (7.10)
Six to ten plots	1 (0.39)	1 (0.82)		1 (2.22)	3 (0.55)
Total	259 (100)	122 (100)	123 (100)	45 (100)	549 (100)

Note: Figures in the parentheses are in percentage

But a noteworthy difference existed between experiences of farmers who organized demonstration plot during March 2005 to March 2006 and who did not. Among the 165 demonstration plots organized by the surveyed farmers, 143 plots (86.67%) were organized by the 72 farmers who also organized plots during March 2005 to March 2006 (Table 4).

Table 4. Number of demonstration plots organized by farmers in last five years

Status of the farmers	Number of plots	Plot farmer ratio
Demonstration plot organizers	143 (86.67)	1.99
Other farmers	22 (13.33)	0.05
Total	165 (100.00)	0.30

Note: Figures in the parentheses are in percentage

Quality of input provided by CSUKO during demonstration plots

Almost all the farmers were pleased with the quality of inputs provided by the office to organize demonstration plots. Among the respondents, 92.42% reported that the quality of seed/seedlings provided by CSUKO was better than that available in the local markets. This figure was 83.33%, 81.58% and 100% incase of urea, NPKS and other fertilizers respectively (Table 5).

Table 5. Quality of inputs provided by CSUKO for using in demonstration plots

Name of the input	Quality of the input compare to that available in market				
	Good	Bad	Equal quality	Do not know	Total
Seed/seedlings	61 (92.42)	1 (1.52)	1 (1.52)	3 (4.55)	66 (100.00)
Urea	10 (83.33)	0	1 (8.33)	1 (8.33)	12 (100.00)
NPKS	31 (81.58)	1 (2.63)	4 (10.53)	2 (5.26)	38 (100.00)
Other fertilizers	12 (100.00)	0	0	0 (0.00)	12 (100.00)

Note: Figures in the parentheses are in percentage

Advocacy service provided by CSUKO during demonstration plots

Timely and effective advices are essential for better production. This was especially important incase of demonstration plots as new technologies are practiced here. Table 6 shows that 69.44% of the farmers received regular advocacy services from respective CSUKO staffs. Only three of the farmers (4.17%) informed advocacy services were very irregular. Most of the farmers (54.17%) were moderately satisfied about effectiveness of these advice services. Only 2.78% of the farmers found advices to be not at all effective. Another 37.50% farmers opined

found these services as very much effective (Table 6).

Table 6. Farmers reporting about regularity of advice provided by CSUKO during demonstration

Farmer's response		Status of the farmers				
		Landless	Marginal	Small	Medium & large	**All farmers**
Regular of advice services	Regular	15 (62.50)	12 (75.00)	17 (73.91)	6 (66.67)	**50 (69.44)**
	Irregular	8 (33.33)	3 (18.75)	5 (21.74)	3 (33.33)	**19 (26.39)**
	Very irregular	1 (4.17)	1 (6.25)	1 (4.35)	0	**3 (4.17)**
	Total	24 (100)	16 (100)	23 (100)	9 (100)	**72 (100)**
Effective advice services	Very much	6 (25.00)	10 (62.50)	9 (39.13)	2 (22.22)	**27 (37.50)**
	Moderately	14 (58.33)	5 (31.25)	14 (60.87)	6 (66.67)	**39 (54.17)**
	Not at all	3 (12.50)	0	0	1 (11.11)	**4 (5.56)**
	No ans	1 (4.17)	1 (6.25)	0	0	**2 (2.78)**
	Total	**24 (100)**	**16 (100)**	**23 (100)**	**9 (100)**	**72 (100)**

Note: Figures in the parentheses are in percentage

Yield performances of demonstration plots

Any demonstration plot cannot be considered successful unless it comes out with good result. Better yield performance is sufficient enough to motivate farmers towards the technology. Survey findings show that 43.06% of the farmers were not happy with yield performances of their demonstration plots. Dissatisfaction level was comparatively higher among the marginal (50%) and small (50%) farmers (Figure 2).

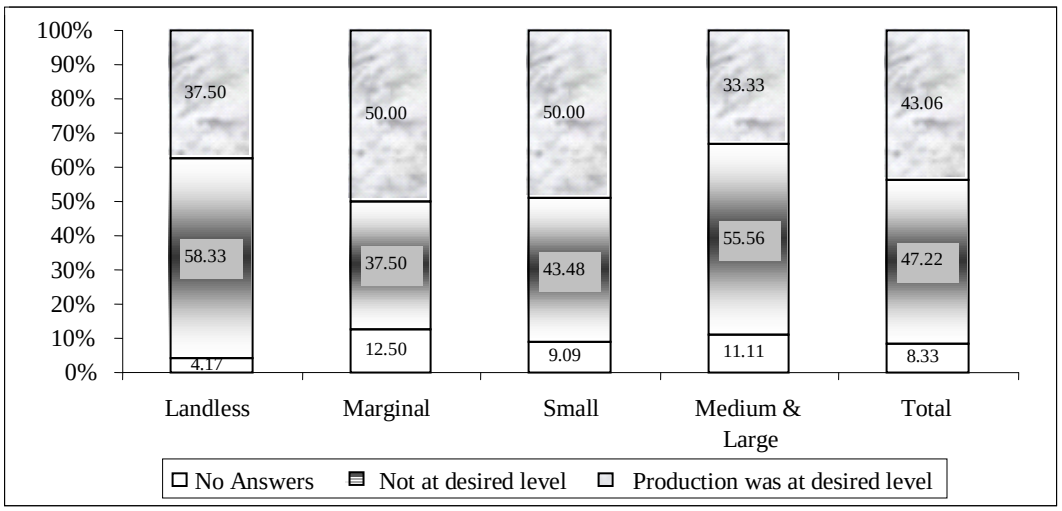

Figure 2. Farmers' views about yield performances of demonstration plots

Future use of the technology

Among the demonstration plot organizers, 56.94% informed that they would practice the technology even if CSUKO does not provide any support. Others motivation level was not so high. One forth of the farmers (25%) was not sure about their future action and 15.28% informed that they would practice the technology only if CSUKO provides assistance (Table 7).

Table 7. Farmers' willingness to practice the technology in future

Farmers' response	Status of the farmers				
	Landless	Marginal	Small	Medium & large	Total
Willing to practice the technology without help of CSUKO	10 (41.67)	12 (75.00)	13 (56.52)	6 (66.67)	41 (56.94)
Not sure what should do in future	8 (33.33)	3 (18.75)	5 (21.74)	2 (22.22)	18 (25.00)
Will practice if only assistance is available	4 (16.67)	1 (6.25)	5 (21.74)	1 (11.11)	11 (15.28)
Wont practice the technology even if assistance is available	0	0	0	0	0
No answer	2 (8.33)	0	0	0	2 (2.78)
Total	24 (100.00)	16 (100.00)	23 (100.00)	9 (100.00)	72 (100.00)

Note: Figures in the parentheses are in percentage

Farmer's participation in demonstration plots organized by other farmers

Only 12.57% of the farmers reported that they visited other farmer's organized demonstration plots. Here a noteworthy difference was existed among farmers who organized demonstration plots and who did not. Among the demonstration plot organizers, 44.44% visited other farmers organized demonstration plots, whereas this was only 7.76% incase of other farmers. The farmers who were insisted more by the CSUKO staffs had more participation record (Table 8).

Table 8. Farmers participation in demonstration plots

Status of the farmers	Participated	Not participated	Total
Demonstrations plot organizers	32 (44.44)	40 (55.56)	72 (100.00)
Other farmers	37 (7.76)	440 (92.24)	477 (100.00)
Total	69 (12.57)	480 (87.43)	549 (100.00)

Chi-square=77.114, P-value=0.000, Cramer's V=0 .375
Note: Figures in the parentheses are in percentage

Farmers' views about effectiveness of demonstration plots

Demonstration plots are organized to orient farmers to different new technologies so that they can wisely increase their production. Questions were put forward to the farmers to know their observations about demonstration plots on the above two issues. Almost all the farmers mentioned demonstration plots to be very much effective. Among the farmers, 78.01% informed that new technologies can be learnt from demonstration plot. In response to another question, 89.86% of the farmers thought that demonstration plots positively contribute to increase production in their locality (Table 9).

Table 9. Farmers view and experiences about effectiveness of demonstration plots

Issues	Types of demonstration plots	Farmers view			
		Agree	Moderately agree	Not agree	Total
New technologies can be learnt	Self organized	59 (81.94)	11 (15.28)	2 (2.78)	72 (100)
	Other farmer's plot	51 (76.12)	12 (17.91)	4 (5.97)	67 (100)
	Total	110 (79.14)	23 (16.55)	6 (4.32)	139 (100)
Effective to increase production of the locality	Self organized	63 (87.50)	8 (11.11)	1 (1.39)	72 (100)
	Other farmer's plot	61 (92.42)	3 (4.55)	2 (3.03)	66 (100)
	Total	124 (89.86)	11 (7.97)	3 (2.17)	138 (100)

Note: Figures in the parentheses are in percentage

Conclusion

Limited number of farmers had experiences to organize and visit demonstration plots and farmers who organized demonstration plots, but most of the farmers who experienced these services found these to be effective. During demonstration plots most of the farmers reported to get good quality inputs and timely advice services and expressed their willingness to practice the technology in future, though many of the demonstration plot organizers were not satisfied with yield performances of their plots. A notable percentage of the farmers believed that new technologies can be learnt from demonstration plots and these plots can play an effective role to increase production of their locality.

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