Dairy knowledge of the local service providers for livelihood improvement

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ABSTRACT

The main purpose of the study was to determine and describe the extent of dairy knowledge of the Local Service Providers for livelihood improvement. Seventy-two (72) LSPs were randomly selected as sample from an updated list of 255 LSPs. A pretested and structured interview schedule was used to collect data from the respondents during August 2018. Dairy knowledge of the Local Service Providers was estimated by asking them fifteen inquiries on various aspects of dairy and services. Descriptive statistics, multiple regression analysis and stepwise multiple regression analysis were used. Slightly near about three-fourths (73.6 percent) of the respondents had excellent dairy knowledge followed by 23.6 percent of the respondents had good knowledge and only 2.8 percent had poor dairy knowledge. Regression analysis explored that the three selected characteristics as the most contributing factors in influencing the dairy knowledge of the LSPs and these are training received, innovativeness and extension contacts.

Keywords: Dairy, Knowledge, Livelihood, Local Service Providers

INTRODUCTION

Bangladesh is a densely populated, agriculture-based country with 51.88 percent of the population working in agriculture (BBS 2018). A considerable section of the population relies on livestock for their livelihood. The livestock sub-sector contributes 1.66 percent to GDP, creates 13 percent of total foreign exchange earnings, and employs around 20% of the rural population full-time (BOS 2016). Bangladesh has a high livestock population density. In the 2019-20 year, Bangladesh's overall livestock population is 412.24 million, with cattle accounting for 24.39 million (DLS 2020). Livestock offers full-time employment to around 20% of the rural population and earns 13% of foreign exchange revenues (Al-Amin 2018). The amount of cropland available is shrinking as the population grows. Dairying is an important sector that generates self-employment, which is one of Bangladesh's most important sources of income. Optimal output is critical for running a profitable dairy business (Louca and Legates 1968,

Esslemont and Ellis 1974). Although Bangladesh is a densely livestock populated country, but the milk production is not satisfactory due to low productivity of dairy animals, and lack of proper care and management (BER 2012). Due to this acute shortage of milk production and high-income elasticity of demand for milk there is a good potential for growth of dairy sector. Despite the high demand of milk and milk products, the dairy farming is not growing with the pace of requirement of the country (Rashid et al. 2015). The livestock animals are vital to the rural economy. Not only do thousands of local and international businesses operate in this industry (Alam 2021). About two-third of the world's poor people live in rural areas, and most of them depend on agriculture for their livelihoods (Mogues et al. 2009).

Dairying in Bangladesh has been transforming from traditional subsistence to more market-oriented which

would open the opportunity for dairy farmers to exploit the rising demand on milk and milk products at national as well as global dairy markets. As a source of supplying animal protein to human diet, milk occupies second position after meat and egg (Rashid et al. 2015, Uddin et al. 2020). Milk production of Bangladesh was 106.80 Lakh Metric Tons in 2018 (DLS, 2019). The most recent scientific concept of dairy farming is focused on the primary pillars of innovative balanced feeding, breeding, effective management, and health control, which are the major ingredients in creating desirable and expected animal husbandry circumstances (Sabapara et al. 2013).

Shomoshti project aims to support rural households, particularly the poor and disadvantaged, by developing market systems and enhancing inclusive basic services (related to income, nutrition & health) which will result in higher incomes, improved livelihoods, and social development outputs (CARE 2017). The study was conducted with the following objectives: i) to describe some selected characteristics of the Local Service Providers; ii) to determine and describe the extent of dairy knowledge of the Local Service Providers for livelihood improvement; and iii) to explore the contributions of the selected characteristics of the Local Service Providers with their dairy knowledge for livelihood improvement.

The study was conducted in Saidpur Upazila under Nilphamari district where Local service providers (LSP) are providing their service who have been implementing by Shomoshti project at Gram Bikash Kendra (GBK).

Shomoshti project has been working among four selective districts such Rangpur, Dinajpur, Nilphamry and Gaibandha by the implementing Gram Bikash Kendra (GBK). Each district has selective Upazilla for implementing the Shomoshti project activates. Researcher has purposively selected Saidpur Upazilla under Nilphamari district due to dairy producing area accordingly to project criteria. The Upazila has 10 unions, out of which the researcher selected 5 (five) unions purposively for inclusive study.

An updated list of 255 of Local Service Providers (LSPs) was collected from Departmnet of Upazilla Livestock office record and consequently verify and validation by ACI Godrej Agrovet Pvt. Ltd. and Agro-vet division, SQURE Pharmeuticals Ltd. Bangladesh. Out of them a sample of 72 (About 28 % of total LSPs population) Local service providers were selected through simple random sampling method. Simultaneously, a reserve list of 7 LSPs was made to use in case of non-availability of sampled LSPs. The detailed distribution of population and sample is shown in Table 1.

MATERIALS AND METHODS

Table 1. Union wise distribution of the population and sample

Name of the Union	Population	Sample	Reserve list
Khatamadhupur	47	13	1
Bothlagari	49	14	1
Kamar pukur	55	16	2
Kashiram belpukur	50	14	1
Bangalipur	54	15	2
Total	255	72	7

The seven selected characteristics of the Local Service Provider, namely age, education, annual family income, cosmopolitness, training received, innovativeness, and extension contacts constituted the independent variables of this study. These selected characteristics were measured by appropriate measurement techniques. Dairy knowledge of the Local Service Provider for livelihood improvement was the dependent variable of the study. Dairy knowledge of the Local Service Providers was estimated by posing them fifteen inquiries on various aspects of dairy and services. The questions were not of equal marks. The total marks for entire question were 30. A respondent answering a question correctly obtained the full marks, while for a partial correct answer he/she was given marks proportionately.

The total knowledge score acquired by a respondent was taken as his dairy & service knowledge score. This score could range from 0 to 30. Where Zero (0) indicating no knowledge and 30 indicating the highest knowledge.

A structured interview schedule was used to collect data from the respondents through a face-to-face interview method. First of all, the collected data were coded, summarized, and processed for analysis. All possible errors and inconsistencies were eradicated for verification of the data. Then the collected data were analyzed with computer-based software - SPSS (Statistical Package for Social Sciences) version 22, and tables and graphs were prepared with Microsoft Excel 2010. Multiple regression analysis (enter method) was run to determine the contributions of the selected characteristics of the local service provider with their

dairy knowledge. Furthermore, stepwise multiple regression analysis was also performed to identify the individual contribution of each of the significant explanatory variables.

RESULTS AND DISCUSSION

Selected characteristics of the Local Service Providers

Age: Data presented in Table 2 reveal that below half (43.4 percent) of the total respondents belonged to the young aged, 45.8 percent were middle aged and only 11.1 percent under old aged category. Keya (2018), Shing (2018) and Azad (2013) also found similar findings in their study. This is on the grounds that LSPs are an expertly serving administration at the local area and particularly arduous and serious service delivery contrasted with producers for better earning That is the reason; maximum of the respondents had a place with the dynamic age bunch having hard support and diligent capacity for economic benefit which helps to family income.

Education: Data stated in the Table 2, indicated that majority (41.7 percent) of the LSPs had higher secondary level and 34.7 percent of the LSPs fell in the secondary level and 23.6 percent of the LSPs had above higher secondary level. For the requirements of dairy and animal science knowledge and skill from different educational institution to serve these services and high competitiveness is the main reason of high literacy rate. Higher education refers to increase capacity which improving livelihood condition of individuals.

Table 2. Main features and categorization of the Local Service Providers (N=72)

Characteristics	Scoring method	Range Observed (Possible)	Categories	Respondents No.	Respondents %	Mean	SD
Age	No. of year	25-55 (Unknown)	Young (≤35)	31	43.1	38.47	6.910
			Middle (36-50)	33	45.8		
			Old (>50)	8	11.1		
Education	Year of schooling	10-16 (Unknown)	SSC (≤10)	25	34.7	11.43	1.608
			HSC (11-12)	30	41.7		
			Above HSC (>12)	17	23.6		
Annual family income	('000' Tk.)	150-725 (Unknown)	Low income (≤344)	11	15.3	472.34	128.23
			Medium income (344.01-600)	56	77.8		
			High income (>600)	5	6.9		
Cosmopoliteness	Score	5-16 (0-18)	Low (≤6)	4	5.6	10.22	2.164
			Medium (7-12)	59	81.9		
			High (>12)	9	12.5		
Training received	Days	2-42 (Unknown)	Short (≤10)	14	19.4	19.26	9.897
			Medium (11-28)	46	63.9		
			Long (> 28)	12	16.7		
Innovativeness	Score	3-27 (0-30)	Low (≤10)	3	4.2	19.43	6.225
			Medium (11-20)	31	43.1		
			High (>20)	38	52.8		
Extension contacts	Score	9-21 (0-36)	Low (≤12)	8	11.1	22.22	5.848
			Medium (13-24)	35	48.6		
			High (>24)	29	40.3		

Annual family income: Data shows in the Table 2 that the highest proportion (77.8 percent) of the LSPs had medium annual family income, while 15.3 percent had low income, and only 6.9 percent of the LSPs had high annual family income. However, overwhelming majority (84.7 percent) of the respondents belonged to medium to high annual family income category.

According to the Food and Agricultural Organization (FAO), the term of livelihood involves the capabilities, goods such as capital and social, and the activities need to life. In this report, the LSPs occupation is the economically beneficial which can enhance to livelihood in each family and ordinary representation of the service provider of Bangladesh. Shing (2018) also found close findings in his study.

Cosmopolitness: Data presented in Table 2 indicate that 81.9 percent of the LSPs had medium cosmopoliteness category, compared to 12.5 percent had high cosmopoliteness category and only 5.6 percent of them had low cosmopoliteness category. However, overwhelming majority (94.4 percent) of the respondents belonged to medium to high cosmopoliteness category. Shing (2018) also found close findings in his study. Cosmopoliteness implies LSPs move of them outside of his own assistance conveyance region. At the point when a LSPs habitually moved outside of his own region makes his pay more and economic support which can help to their family income and secured their livelihood.

Training received: Data presented in the Table 2 revealed that 69.3 percent of the respondents received medium duration training on dairy followed by 19.4 percent received short duration training, 16.7 percent had long duration training category. It means that huge majority (80.6 percent) of the LSPs had medium to long duration training received. This is because of the livestock science as a logical information and innovation based of the service arrangement framework. Nobody can convey their administrations without viable training. This training refers to capabilities and personal ability including social and economic capital of LSPs. More training can increase the knowledge and skill of LSPs, and they can provide support to the community at frequently and significantly. So, LSP can provide more service for more income. Thus, a result their income will be higher than previous which help to family income. On the other hand, producers will get benefit by getting technical service from skilled LSPs apparently. By the way, there holistic livelihood would be secured and enhanced both two ways.

Innovativeness: Data appeared in Table 2 show that the slightly above half (52.8 percent) of the respondents had high innovativeness towards dairy, followed by 43.1 percent had medium innovativeness and only 4.2 percent had low innovativeness. As the respondents had high ingenuity, they are occupied with dairy treatment and livestock information services by own innovativeness. By the own innovation and diffusion process they can solve the critical situation on livestock treatment at filed which can recognized them as skill and efficient services provider for livestock management. In the long run, LSPs are getting manded as technical assistance of livestock service that its help increases income and socially acceptable service provider. Consequently, high creativity of the LSPs is ideal for adoption of current innovation on livestock service. Thus, the way LSPs are being the driver of livestock support service where they can enhance the livelihood of community people. This may be because of the idea of serious assistance by LSPs of this investigation region.

Extension contacts: Data presented in Table 2 shows that majority (48.6 percent) of the LSPs had medium extension contact, 40.3 percent had high, and only 11.1 percent had low extension media contact. The findings indicate that overwhelming majority (88.9 percent) of the LSPs had medium to high extension media contact. This might be because of the explanation that the respondents contact unequivocally with various extension media like as livestock magazine, paper, journal, DLS guideline, NGOs, and company personnel. Thus, they become more knowledgeable and skill sharing with them about recent methodology and technique. Shing (2018) and Mondal (2014) also found close findings in their study.

Dairy Knowledge of the Local Service Provider for livelihood improvement: Data furnished in the Figure 1 revealed that slightly near about three-fourths (73.6 percent) of the respondents had excellent knowledge followed by 23.6 percent of the respondents had good knowledge and only 2.8 percent had poor knowledge on dairy for livelihood improvement. Islam (2008) also found close findings in his study. This is due to that LSPs are closely worked with livestock producers. They had practical experience on dairy which can help to higher income from livestock service. Skill and experience LSPs provide better support and get economic return from their service. So, by the proven knowledge and experience they can increase their livelihood status from livestock service provision. The livelihood is sustainable when they can cope with and recover from adverse trends and sudden shocks, and when they allow the maintenance and enhance its capability and assets both now and, in the future, while not undermining the natural resources base (FAO, 2009). Shing (2018), Rahman (2017) and Monalesa (2014) also found close findings in their study. Kaur et al. (2017) revealed that majority (68.75 percent) of women had medium knowledge level on various recommended dairy farming practices, 13.75 had low and only 17.5% had high (17.50%) knowledge level.
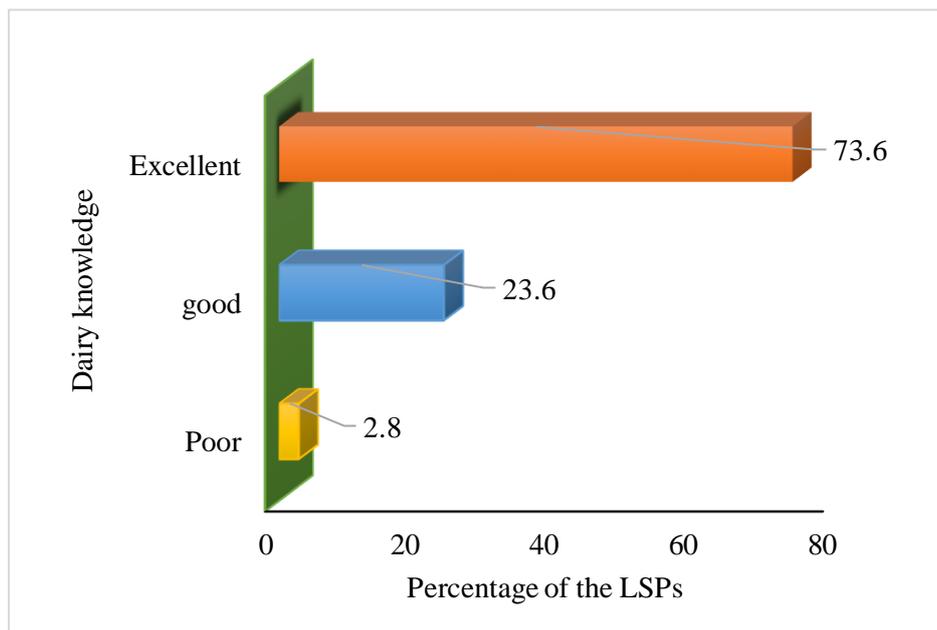
Figure 1. Distribution of the LSPs according to their dairy knowledge for livelihood improvement

Contributions of the selected characteristics of the local service provider with their dairy knowledge for livelihood improvement: To determine the contributions of the selected characteristics of the local service provider with their dairy knowledge, multiple regression analysis (enter method) was conducted. The findings of the regression analysis are shown in Table 3. The findings of multiple regression analysis show that the model is significant as F-value is 10.07 significant at 1% level of significance. Table 3 also revealed that three (3) explanatory variables out of seven (7) entered the model and can jointly explain 47.2 percent variability in the dairy knowledge. The significant explanatory variables are training received, innovativeness and extension contacts which can improving their livelihood by providing livestock service at community.

Table 3. Multiple regression coefficients of the selected characteristics Local service provider on dairy knowledge (n = 72)

Dependent variable	Independent Variable	B	P	R^2	Adj. R^2	F
	Age (X_1)	0.093	0.311			
	Education(X_2)	0.077	0.407			
	Annual family income (X_3)	-0.022	0.813			
Dairy knowledge	Cosmopoliteness (X_4)	0.017	0.849	0.524	0.472	10.07
	Training received (X_5)	0.256	0.028*			
	Innovativeness (X_6)	0.269	0.008*			
	Extension contacts (X_7)	0.350	0.003*			

** Significant at $p < 0.01$; * Significant at $p < 0.05$

Furthermore, stepwise multiple regression analysis was also performed to identify the individual contribution of each of the significant explanatory variables. Table 4 shows the output of the stepwise multiple regression analysis. The findings indicate that three explanatory variables can jointly explain 51.1% variability in the dairy knowledge. Among them extension contacts the LSPs alone can contribute about 38.1% variability in the dairy knowledge. Extension media contact enhances the knowledge of the LSPs at short time than others. More media contact makes LSPs updated and more informative where they can earn at their satisfying level which improving livelihood status of LSPs as well as community people. Mondal (2014) found that extension contact of the strawberry farmers had significant contribution on knowledge on strawberry cultivation.
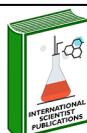
Rahman (2015) and Monalesa (2014) also found similar findings in their study. It is also demonstrated that next the extension contacts the LSPs the most significant explanatory variable is training received and it can contribute about 7.7% variability in the dairy knowledge. Azad (2013) also found similar findings in their study. This means that LSPs who were more trained they have more dairy knowledge and earn money and that helped the LSPs to better services on dairy sector. The third variable entered the model was innovativeness and can contribute 5.3% variability in the dairy knowledge and vaccination service. Moreover, it can be said that the LSPs who are more innovative have more dairy knowledge; they get economic return from their service.

Table 4. Summaries of the stepwise multiple regression analysis models

Model	Variable entered	R^2	Adj. R^2	Variation explained (percent)	Significance level
Constant	11.609				
Constant+ X_7	Extension contacts (X_7)	0.381	0.372	38.1	0.000
Constant+X_{7+} X_5	Training received (X_5)	0.458	0.443	7.7	0.002
Constant+X_{7+} X_{5+} X_6	Innovativeness (X_6)	0.511	0.489	5.3	0.009

CONCLUSION

In this study, slightly near about three-fourths (73.6 percent) of the respondents had excellent dairy knowledge which improving their livelihood and community support. This is happened due to their medium training on dairy, high innovativeness, and medium extension media contacts. So, there is plenty of opportunity for advancement in dairy practices and better service through more increasing the existing level of livelihood status of LSPs. The training received, innovativeness and extension contacts were explored as the most contributing factors in influencing the dairy knowledge of the LSPs. The LSPs having more training received, innovativeness and extension contacts had more dairy knowledge which can improving livelihood of LSPs and consequently, producers will interest to get proper service for better production. The policy makers may give due attention on the above factors for augmenting the dairy knowledge which might impact on livelihood.

ACKNOWLEDGEMENTS

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