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IMPACT OF FARMERS TRAINING ON THE ADOPTION OF BLRI TECHNOLOGIES

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ABSTRACT: *Between July 2022 and June 2023, a study assessed technology transfer, the adoption of BLRI-developed technologies, and the livelihood of BLRI-trained livestock producers. A total of 150 random farmers from Naikhongchhari, Jessore Sadar, Vanga, Baghabari, Godagari Upazilas, Bandarban, Jessore, Sirajgonj, Faridpur, and Rajshahi districts participated in three days of BLRI training. Data were collected using a pre-tested questionnaire, arranged in Microsoft Excel and analyzed at SPSS-20. Most farmers (53.33%) were male, with average age, family size, year of schooling, and land holdings were 37.63±1.42 (y), 4.92±0.09 (no.), 6.408±0.74 (y), and 93.45±17.80 (Deci.) respectively. Cattle numbers were highest in Godagari (4.13±0.36), goats and sheep in Naikhongchhari, and poultry in Vanga (46.46±26.41) upazila. Vanga also had the highest rice (684.87±55.92 kg) and egg (836 ±95.10 no.) consumption/family/year. Fish (190.7±15.28 kg) and milk (76.97±7.60 L) consumption were highest in Baghabari, while dal, meat, and vegetable consumption were highest in Naikhongchhari. Technology adoption was highest in Naikhongchhari and lowest in Godagari. Production and treatment costs were highest in Baghabari (141,185 Tk and 4,561 Tk), while annual income was highest in Jessore Sadar (319,440 Tk) and lowest in Godagari (199,752 Tk).*

KEYWORDS: Livestock, Training, BLRI, Technologies, Livelihood, Capital.

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INTRODUCTION

Bangladesh is a small country in South Asia with a population of about 174.25 million (Worldmeter, 2024). Poverty alleviation is one of the major challenges of the twenty-first century in Bangladesh (Akteruzzaman et al., 2008). In our agro-based country, livestock plays a vital role in meeting the challenges and promoting economic development.

Compared to crops, dairy produces more regular cash revenue and more jobs per unit value added than marketing (Asaduzzaman, 2000; Omore *et al*., 2002). Dairy animals, including cattle, buffalo and goats, and dairy farming are large potential agricultural industries in Bangladesh. Nearly 85% of the country's workforce is in agriculture and livestock. Rural people's involvement significantly influences Bangladesh's economic development in livestock farming.

The contribution of livestock to the National Gross Domestic Product (GDP) is 1.85% and its share in Agricultural GDP is 16.52% (DLS, 2023). The GDP growth rate of livestock is about 3.23%. (DLS, 2023). Besides, 20% of the population directly and 50% partially depend on the livestock sector. Most had little contact with extension agents, showed little concern for credit, and needed to learn about farming. This large population needs practical training to get optimum production from livestock. As a result, improving livestock productivity depends mainly on farmers' knowledge and expertise in livestock technologies. Having the right knowledge and training makes it easier for farmers to evaluate, adapt and change their farming techniques to gain a competitive advantage from improved technologies**.** In the last few years, they have had an increase in the production of milk, meat (beef, mutton, and chicken), and eggs. In FY 2022–2023, the availability of milk, beef, and eggs per person increased to 221.89 ml/day, 137.38 gm/day, and 134.58 number/year. As the population is growing daily, it is a prime concern to increase the number of native improved breeds. As a part of this, BLRI is dedicated to doing strategic research to create such type breeds of cattle, chickens, and ducks. For this, there is a need to develop management methods (feeding) to get proper nutrition and disease prevention and health management strategies. Besides, some models must be established for milk, meat, and egg production systems. Since its founding, BLRI has developed 95 technologies and packages for livestock and poultry production. These innovations have a considerable impact on raising milk, meat, and egg production, as well as generating cash and adding jobs at the farm level. In Bangladesh, BLRI technologies are crucial for rearing livestock more scientifically and profitably. Nonetheless, certain technologies might have been more successful than others in benefiting the intended recipients favourably (Islam, 2010).

Each year, BLRI conducts training on different technologies that it has developed. It is essential to transfer these types of technologies at the farmer level and providing training to them can be one of the easiest ways. Training is an organized activity designed to increase the farmers' knowledge, skills, and competencies in preparation for refining them (Jacob *et al*., 2012). Practical training requires the trainees to know how to use the information they must utilize after training instead of the local ways they have already adopted in their surroundings.

. Farmers can improve their awareness and skills to increase their agricultural output and revenue, which would help them escape poverty (Ogundele *et al*., 2012). In addition, it is a crucial component of all development initiatives as farmer training advances human resource

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development in the agricultural sector. In this regard, there is no substitute for farmers' training, and an evaluation of the impact of that training on farmers would provide a clear image of the training that was delivered. Any investment in the livestock industry will benefit smallholders greatly, resulting in a more equitable income distribution and a reduction in poverty in this country. The Bangladesh Livestock Research Institute's mission is to supply farmers with the knowledge they need to run their farms profitably and successfully.

Village farmers' involvement in livestock-based farming is crucial to the nation's economic development. Training should be provided to improve farmers' skills, competencies, and capabilities and build up their farm practices and productivity (Sharma et al., 2017). This research aims to assess the significant effects of the training supplied to farmers on technologies developed by BLRI and investigate how this training influences their livelihoods and economic conditions in the targeted areas.

MATERIALS AND METHOD

Selection of location and farmers

A total of 150 livestock farmers were selected from Naikhongchari, Baghabari, Godagari, Jessore Sadar, and Vanga upazila of Bandarban, Sirajganj, Rajshahi, Jessore and Faridpur districts of Bangladesh. All of the farmers participated in a three-day training program. Among the participants, 60 farmers participated in the training program on "Dairy Cattle Rearing and Management", 30 farmers attended the training program on "Hilly Chicken Rearing and Management," and 30 farmers participated in the training program on "Duck Rearing and Management," and 30 farmers were attended in the training program on "Beef cattle fattening and green grass production" arranged by training, planning, and technology testing division of BLRI.

Duration of Data Collection

Data collection took place from July 2022 to June 2023.

Data Collection

Data collection was done using a field survey method. Data were gathered from chosen farmers with a questionnaire. This study included both primary and secondary data. The dairy farmers, Fattening farmers, Poultry farmers and duck producers were selected using a simple random sampling technique.

Data entry and processing

A combination of descriptive, statistical, and mathematical methods was used to accomplish the goals and achieve the significant result.

Data Analysis

The objectives were mostly met via descriptive analysis. Microsoft Excel and the statistical tool "SPSS-20" were used for the statistical analysis.

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Analytical Technique

The mean and standard error indicated the knowledge and skill the livestock farmers attained from this training.

Equation 1: Formula for mean: $A=\frac{1}{n}\sum_{i=1}^{n} a_i$

A= Arithmetic mean

n=Number of Values

a_i= Data set Values

Equation 2: Formula for standard error: $SE=\frac{\sigma}{\sqrt{n}}$

SE= Standard error of the sample

σ= Standard deviation of the sample

n= number of the sample

Table 1: Location and Distribution of Respondents

Location	Frequency (N)	Percentage (%)
Baghabari, Sirajgonj	30	20
Godagari, Rajshahi	30	20
Jesasore Sadar, Jessore	30	20
Vanga, Faridpur	30	20
Naikhongchari, Bandarban	30	20
Total	150	100

RESULT AND DISCUSSION

Demographic Characteristics of Livestock Farmers

Table 2 below indicates the demographic data of livestock farmers. The data showed that most respondents were male (53.33%). The highest number of family members per household was found in Vanga Upazila (5.17±0.37), and the lowest was in Baghabari Upazila (4.67±0.31). The average years of schooling were 6.41±0.74 years, indicating that farmers were moderately educated. The education level was slightly higher in Jessore Sadar Upazila (9.2±0.93 years) of Jessore district and the lowest was in Naikhongchari Upazila (5.16±0.88) of Bandarban district**.** Akteruzzaman *et al*. (2008) found that the average level of education of the respondents was 4.50, which was lower than this research finding because the education level of the farmers may have improved. In his experiment, Hossain *et al*. (2021) found moderately educated farmers, and Anwar et al. (2019) found 13% below SSC and 67% had a primary educational level that correlates with the present study. Hossain *et al*. (2021) found that the average age of

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participants was 36.73 years, which correlates with the present study. In another experiment, the middle-aged category and young-age category farmers were 45.3% and 16.0%, respectively, as Rahman *et al.* (2012) found. According to this category, young and middle-aged farmers were more active, dynamic, and enthusiastic to participate in livestock production-related activities. Sarker *et al*. (2017) also emphasized middle-aged farmers because of their excellent experience and acquaintance with livestock production. The average family size of the farmers was 4.92±0.09 and was higher than the HIES (Household Income and Expenditure Survey Hies**)** 2022. According to the survey of HIES (Household Income and Expenditure Survey hies**)** 2022, the average household size in rural areas was 4.30, and the family size of the farmers found from the research was 4.92±0.09, which was higher than the HIES. Hossain *et al*. (2018) found that the average family size was 80% for families up to five and 20% for families up to eight, and Monira *et al*. (2022) found 5.10, which was higher than the present study in another research. Huque (2011) experimented with the performance traits of dairying in another study and found that the average number of cows per family ranged from 1.75 to 2.47.

Table 2: Demographic Characteristics of Livestock Farmers

Variables	**Baghabari, Sirajgonj**	**Vanga, Faridpur**	**Jessore Sadar, Jessore**	**Naikhongchori, Bandarban**	**Godagari, Rajshahi**	**All areas**
Gender						
Male (%)	56.67 (17)	16.67 (5)	53.33 (16)	53.33 (16)	86.67 (26)	53.33 (80)
Female (%)	43.33 (13)	83.33 (25)	46.67 (14)	46.67 (14)	13.37 (4)	46.67 (70)
Age (Years) (Mean±SE)	39.55±2.10	36.63±2.14	32.5±2.05	39.2±2.09	40.27±2.24	37.63±1.42
Year of Schooling (Mean±SE)	6.61±0.65	5.77±0.90	9.2±0.93	5.16±0.88	5.3±0.87	6.41±0.74
Family member (Mean±SE)	4.67±0.31	5.17±0.37	4.8±0.28	4.93±0.38	5.03±0.33	4.92±0.09
Land Holding (D.C.) (Mean±SE)	148.48±14.26	65.74±13.96	68.01±8.97	123.27±22.96	61.78±15.25	93.45±17.80

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Types of Livestock reared by farmers

Table 3 shows the types of livestock reared by livestock farmers in selected areas of Bangladesh. The table shows that the average number of cattle was highest in Godagari Upazila (4.13±0.36) and lowest in Vanga Upazila (1.43±0.49) compared to Naikhongchari Upazila (2.1±0.30), Jessore sadar Upazila (3.73±0.34) and Baghabari Upazila (3.19±0.50). In the case of goats, the average number of goats was highest in Naikhongchari Upazila (2.97±0.54) and lowest in Vanga Upazila (0.93±0.38). However, the average number of poultry was found to be 25.62±6.06, and the highest was found in Vanga Upazila (46.46±26.41). According to Rahman *et al.* (2014), per hectare, the availability of livestock units was highest in Chittagong and lowest in Chittagong Hill tracts. About 80 to 85 % of the households in Bangladesh keep livestock in the rural areas, and most of the farmers keep indigenous livestock (Hossain et al. 2004). According to BBS 2022-23, the total cattle, goat, and poultry population is 248.56, 269.45, and 3857.04 lakhs, respectively. In all farm categories, the average percentage of rearing crossbred cattle, chicken and d, and duck was 6.7, 2.1, and 12,.9 respectively (Hossain *et al.* 2018). Additionally, they showed that the average number of cattle, goats, and chickens per farm in the small, medium, and large farm categories were 2.17, 3.58, and 3.62, 1.06, 0.7, and 1.53 for cattle, 11.3, 11.7, and 10.2 for chicken, 5.54, 4.41, and 6.81 for ducks, and 2.02, 1.65, and 4.06 for pigeons, respectively. These findings support the current study.

Table 3: Types of Livestock reared by farmers

Location	Cattle (Mean±SE)	Goat (Mean±SE)	Poultry (Mean±SE)
Naikhongchari, Bandarban	2.1±0.30	2.97±0.54	23.83±3.90
Baghabari, Sirajgonj	3.19±0.50	1.35±0.34	13.90±1.86
Vanga, Faridpur	1.43±0.49	0.93±0.38	46.46±26.41
Jessore Sadar, Jessore	3.73±0.34	2.1±0.32	30.13±17.99
Godagari, Rajshahi	4.13±0.36	1.6±0.47	13.8±2.67
All areas	2.92±0.50	1.79±0.35	25.62±6.06

Farming status of farmers in the selected areas

Figure 1 represents farmers' livestock holding status in the selected areas. Most of the farmers in the designated areas were small-scale farmers. Among the chosen regions, small-scale farmers were highest in VangaVangaVanga and Naikhongchari upazila (80%), and medium-scale farmers were highest in Godagari upazila (53.33%). About 60% of farmers owned small farms, 25% had marginally large farms, and 11% owned medium-sized farms. (Rana et al., 2022). The results of the experiments conducted by Hossain (2013) and Kowsari (2014) were almost similar.

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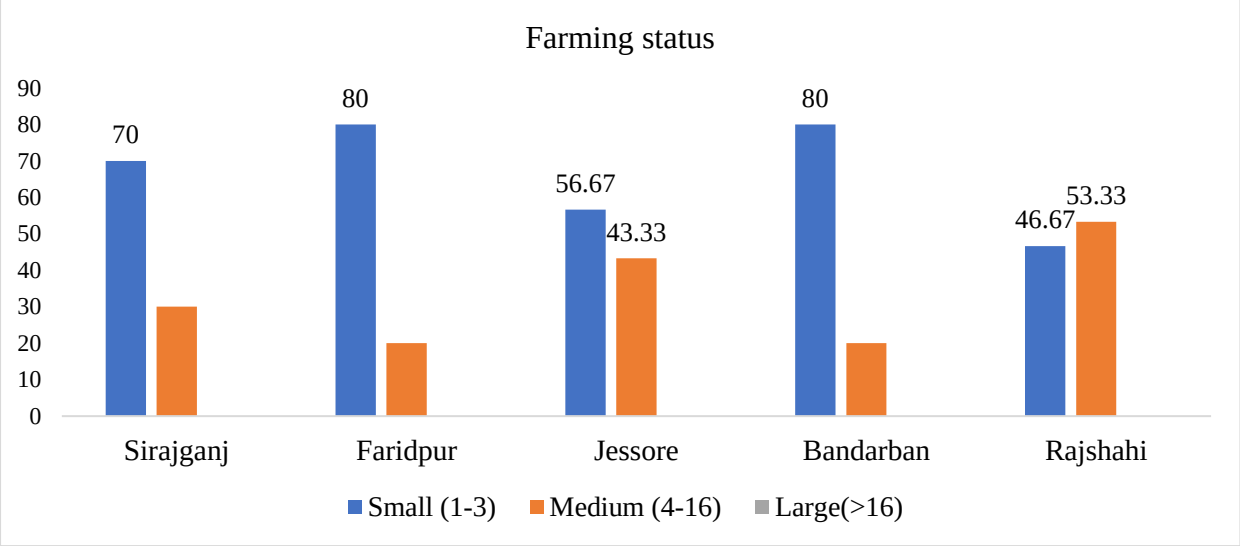

Figure 1: Farming status of the farmers in the selected areas

Cultivation of fodder by the livestock farmers

The following table 4 represents the area of land cultivated for fodder production. The result was that the area of land cultivated for fodder production was highest in Sirajgonj Upazila (32.87±6.65) and lowest in Godagari Upazila (0.65±0.39). In addition, total land holding was highest in Sirajgonj Upazila (148.47±14.74) and lowest in Faridpur Upazila (65.84±13.95). The average area of land used for fodder production in these selected areas was 6.97% of the total land.

Table 4: Total land holding of farmers and the area of land used for fodder production

Location	Total Land Holding (Mean±SE)	Fodder Land Holding (Mean±SE)	Percentage (%) of land used for fodder production
Naikhongchari, Bandarban	125.97±22.69	1.33±0.93	1.05
Baghabari, Sirajgonj	148.47±14.74	32.87±6.55	22.13
Godagari, Rajshahi	67.78±14.84	0.65±0.39	0.96
Jessore Sadar, Jessore	68.01±8.97	1.93±0.73	2.84
Vanga, Faridpur	65.84±13.95	5.2±2.42	7.9
All areas	95.21±17.52	8.39±6.17	6.97

Technology adoption by livestock farmers

The following Table 5 shows the technology adoption rate in the selected areas. The average technology adoption was 41.33%, and the non-adoption rate was 58.67%. The highest technology adoption rate was in Naikhongchari Upazila (86.67%) and the lowest in Godagari Upazila (0%). Considering ten technologies, Hossain *et al.* 2021 found that the adoption rate was higher than the rate of ideas about the concept for housing, feeding and treatment, breeding, and marketing of livestock products, which agreed with the result found by Akteruzzaman et al. (2008).

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Table 5: Technology adoption by the livestock farmers in the selected areas

Location	Yes (%)	No (%)
Naikhongchari, Bandarban	86.67	13.33
Baghabari, Sirajgonj	70	30
Godagari, Rajshahi	0	100
Jessore Sadar, Jessore	16.67	83.33
Vanga, Faridpur	33.33	67.67
All areas	41.33	58.67

Regularity of Vaccination and Deworming

Table 6 represents the regularity of vaccination and deworming. The average regularity of vaccination and deworming in the selected areas was 90% and 78.67%, respectively, which means almost all farmers practice regular vaccination and deworming.

Table 6: Regularity of vaccination and deworming by the livestock farmers in the selected areas

Location	Vaccination (%)	Deworming (%)
Naikhongchari, Bandarban	76.67	66.67
Baghabari, Sirajgonj	100	100
Vanga, Faridpur	80	33.33
Jessore Sadar, Jessore	93.33	93.33
Godagari, Rajshahi	100	100
All areas	90	78.67

Annual income, annual cost of living, and yearly livestock production cost of farmers in the selected areas

The following Table 7 represents the average annual income and the annual cost of living and livestock production cost by each farmer within the selected areas. The average annual income and expenditure in a year were 2,81,718TK and 2,08,192.66TK, respectively. Annual income was comparatively higher in Godagari Upazila, and annual spending was higher in VangaVangaVanga Upazila than in the other areas.

Rana *et al*., 2022, found farmers' average annual income of 148.48 thousand BDT, which is lower than the present study's. He also found that 70% of farmers had low annual incomes, 19% had medium incomes, and 11% had high annual incomes.

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Table 7: Annual income, cost of living and livestock production cost

Location	The mean of annual income (TK)	Mean of annual expenditure (TK)
Naikhongchari, Bandarban	2,99,875	1,90,823.3
Baghabari, Sirajgonj	3,08,552	2,69,587
Godagari, Rajshahi	1,99,752	1,04,180
Jessore Sadar, Jessore	3,19,440	2,00,853
Vanga, Faridpur	2,80,971	2,75,520
All areas	2,81,718	2,08,192.66

Annual food consumption of farmers within the selected areas

The following Table 8 shows the farmers' annual food consumption per household within the selected areas. The average rice, dal, ata, fish, meat, milk, egg and vegetable consumption were 551.60±61.72 kg, 33.95±3.75 kg, 75.79±10.02 kg, 139.66±13.55 kg, 81.40±12.19 kg, 197.62±6.73 L, 540.25±99.83 No. and 253.53±12.73 kg, respectively. Among the food, the average meat, egg, dal and vegetable consumption is highest at Naikhongchari Upazila (113.36±13.72 kg, 630.55±103.5 No., 44.11±5.42 kg and 279.89±38.67 kg respectively) than the other areas. Milk consumption is highest at Jessore Sadar Upazila (217.59±44.48 L) compared to other areas. Among the different areas, Vanga upazila was highest in rice consumption (684.87±55.92 kg), Godagari upazila was highest in ata consumption (99.61±21.71 kg), and Baghabri upazila was highest in fish consumption (190.7±15.28 kg).

Table 8: Annual food consumption of farmers within the selected areas

Name of food items	Locations					
	Naikhongchari, Bandarban	Baghabari, Sirajgonj	Vanga, Faridpur	Jessore Sadar, Jessore	Godagari, Rajshahi	All areas
	(Mean±SE)					
Rice (kg)	343.8±52.33	670.96±36.81	684.87±55.92	528.86±57.47	529.53±63.14	551.60±61.72
Dal (kg)	44.11±5.42	27.03±2.54	42.05±3.95	28.21±2.77	28.35±4.22	33.95±3.75
Ata (kg)	65.27±11.35	48.73±7.59	98.4±19.98	67.22±10.68	99.61±21.71	75.79±10.02
Fish (kg)	126.25±13.55	190.7±15.28	143.2±14.36	122.93±9.69	115.23±18.29	139.66±13.55
Meat (kg)	113.36±13.72	76.97±7.60	51.6±8.56	105.332±12.98	59.73±8.44	81.40±12.19
Milk (L)	190.87±25.66	208±19.95	191.9±27.73	217.59±44.48	179.72±20.39	197.62±6.73
Egg (No.)	630.55±103.5	540.46±48.18	836±95.10	467.7±52.58	226.53±23.75	540.25±99.83
Vegetable (kg)	279.89±38.67	272.06±13.71	218.4±15.19	227.19±17.72	270.1±25.31	253.53±12.73

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CONCLUSION

The pre-training survey findings can provide a comprehensive picture of the farmers' circumstances before official training. Most farmers were found to have less education than a high school certificate, which probably contributed to their lack of understanding of advanced farming methods. Moreover, the acceptance rate of technology was noticeably low, showing that they still needed to accept modern farming tools or techniques. Nevertheless, farmers strongly desired to adopt new technologies, especially after being properly trained. Although most farmers were diligent about routinely vaccinating and deworming their animals, it became clear that they needed an overall grasp of scientific rearing techniques and farm management. Their farms' overall profitability decreased due to the livestock's poor performance and a lack of knowledge and expertise in crucial fields, including nutrition, breeding, and disease management.

However, after analyzing the post-training survey data, it's clear that the farmers' knowledge, abilities, and use of modern farming technologies have significantly improved. The training effectively strengthened their knowledge of scientific livestock management, and they showed an increased capacity to use new methods and embrace modern technologies. Consequently, the potential to improve livestock production and farm management techniques has significantly expanded, providing the basis to enhance farm performance.

REFERENCES

Akteruzzaman, M., Miah, M. A. M., Hossain, M. M., Fattah, K. A., & Rahman, R. (2008). Impact of training on transferring livestock technology for the improvement of livelihoods of the rural farmers. Bangladesh Journal of Animal Science, 37(2), 106-115.

Akteruzzaman, M., Miah, M. A. M., Hossain, M. M., Fattah, K. A., & Rahman, R. (2008). Impact of training on transferring livestock technology for the improvement of livelihoods of the rural farmers. Bangladesh Journal of Animal Science, 37(2), 106-115.

Asaduzzaman, M. (2000). Livestock sector, economic development and poverty alleviation in Bangladesh. Changing rural economy of Bangladesh. Bangladesh Economic Association, Dhaka, Bangladesh, 42-53.

BBS, 2022-23; P denotes Provisional; Prepared by Dr. Hossan Md. Salim. Planning Section, Department of Livestock Services (DLS).

HIES 2020-21. Project of Bangladesh Bureau of Statistics (BBS) Statistics and Informatics Division (SID) Ministry of Planning www.bbs.gov.bd.

Hossain, M. A., Islam, M. A., Akhtar, A., Islam, M. S., & Rahman, M. F. (2018). Socio-economic status of sheep farmers and the management practices of sheep at Gafargaon Upazila of Mymensingh district. International Journal of Natural and Social Sciences, 5(4), 07-15.

Hossain, M. A., Islam, M. S., Akhter, A., & Rashiduzzaman, M. (2021). Impact of training on livestock technology transfer for rural poor farmers livelihood improvement in Bangladesh. SAARC Journal of Agriculture, 19(1), 223-235.Rahman, Z., Hossain, M. M. and Hashem, M. A. (2012). Cattle fattening program in Dinajpur district of Bangladesh. Progressive Agriculture, 23 (1-2), 1-13.

HOSSAIN, M. J. (2013). Change of livelihood status of the farmers due to climate change in a selected area of Satkhira District (Doctoral dissertation).

Article DOI: 10.52589/AJAFS-GAVFESUW
DOI URL: https://doi.org/10.52589/AJAFS-GAVFESUW

Hossain, M. S., Beg, M. A. H., Hossain, M. M., & Afrose, S. (2004). Existing Livestock production and utilization system in a coastal area of Patuakhali district. Bangladesh journal of education and technology, 7(1&2), 25-28.

Hossen, M. J., Hossain, M. S., Abedin, M. J., Karim, M. R., & Rume, F. I. (2008). Animal production strategies in the southern region of Bangladesh. The Agriculturists, 6(1&2), 77-83.

Household income and expenditure survey hies (2022). Bangladesh bureau of statistics (BBS) statistics and informatics division (SID) Ministry of Planning

Huque, K. S. (2014). A performance profile of dairying in Bangladesh-programs, policies and way forwards. ratio, 1(1.93), 1-52.

Islam, S. F. (2010). Consumer preferences and demand for livestock products in urban Bangladesh (Vol. 23). ILRI (aka ILCA and ILRAD).

Jacob, S. K., & George, A. (2013). Assessing the training need of dairy farmers on scientific cattle management practices. International journal of scientific research, 2(7). 496-497.

KOWSARI, M. S. (2014). Transformation of cropland into mango orchard in a selected area of Nawabganj district (Doctoral dissertation).

Monira, K. N., Sultana, N., Rahman, M. Z., & Amin, M. R. (2022). The Impact of Training; Technology Adoption and Improvement of Livelihood of Trained Livestock Farmers in Different Zones of Bangladesh. South Asian Journal of Social Studies and Economics, 15(1), 53-64.

Nations, U. (2015). Department of Economic and Social Affairs, population division. Int Migr Rep.

Ogundele, O. J. K., Idris, A. A., & Ahmed-Ogundipe, K. A. (2012). Entrepreneurial succession problems in Nigeria's family businesses: A threat to sustainability. European Scientific Journal, 8(7), 208-227.

Rahman, S., Begum, I. A., & Alam, M. J. (2014). Livestock in Bangladesh: distribution, growth, performance and potential. Livestock Research for Rural Development, 26(10), 233-238.

Rana, M. M., Murshed, H. M., Roy, D., & Huda, M. N. (2022). Scaling up of livestock production for sustainable livelihood: an empirical study from Sirajganj district of Bangladesh: scaling up of livestock production in Sirajganj district.

Sarker, A. K., Amin, M. R., Hossain, M. A., Ali, M. S., & Hashem, M. A. (2017). Present status of organic sheep production in Ramgoti Upazila of Lakshmipur district. Journal

Sharma, V. K., Vaid, A., Sharma, P. K., Ajrawat, B., Jamwal, A., Sharma, N., ... & Gupta, S. (2017). Impact assessment of training on farmer's perception, performance and entrepreneurship development. Maharashtra Journal of Agricultural Economics, 20(2), 154-156.

Talukder, M. A. I., Shahjahan, M., Habib, M. R., Billah, M. M., Salahuddin, M., Munira, S., ... & Humayun, M. (2017). Living standard of farmers and cattle-oriented marketing system in few rural areas in Pabna district in Bangladesh. Int J Nat Soc Sci, 4(4), 65-9.

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