

# Study on Knowledge Level of the Livestock Farmers of Aspirational Districts of West Bengal, India

**Sreetama Bhattacharjee<sup>1\*</sup>, K. C. Dhara<sup>2</sup>, S. Ghosh<sup>1</sup>, P. Dasgupta (Das)<sup>1</sup>, A. K. Giri<sup>1</sup>, B. Sarkar<sup>1</sup>, Suprovo Roy<sup>3</sup> and S. Bose<sup>3</sup>**

<sup>1</sup>Young Professional II, Biotech-KISAN Hub, Kolkata, Directorate of Research, Extension and Farms, West Bengal University of Animal and Fishery Sciences, West Bengal, INDIA

<sup>2</sup>Principal Investigator, Biotech-KISAN Hub, Kolkata and Deputy Director of Farms, Directorate of Research, Extension and Farms, West Bengal University of Animal and Fishery Sciences, West Bengal, INDIA

<sup>3</sup>Project Assistant, Biotech-KISAN Hub, Kolkata, Directorate of Research, Extension and Farms, West Bengal University of Animal and Fishery Sciences, West Bengal, INDIA

\*Corresponding Author: [sbmegha2@gmail.com](mailto:sbmegha2@gmail.com)

## How to cite this paper:

Bhattacharjee, S., Dhara, K., Ghosh, S., Das, P., Giri, A., Sarkar, B., Roy, S., & Bose, S. (2022). Study on Knowledge Level of the Livestock Farmers of Aspirational Districts of West Bengal, India. *International Journal of Livestock Research*, 12(1), 19-26. <https://dx.doi.org/10.5455/ijlr.20211111111811>

**Received** : Nov 11, 2021  
**Accepted** : Dec 26, 2021  
**Published** : Jan 31, 2022

Copyright © Bhattacharjee *et al.*, 2022

This work is licensed under the Creative Commons Attribution International License (CC BY 4.0). <http://creativecommons.org/licenses/by/4.0/>

## Abstract

*Assessment of knowledge level of farmers is the prerequisite of implementation of any development programme. Therefore, the present study was designed to assess existing knowledge level of the farmers from purposively selected five aspirational districts of West Bengal as identified by the NITI Aayog, Govt. of India. Respondents were randomly selected from one block of each district with total sample size of 4285 number of farmers for the present study. The data was collected with the help of pre-tested structured interview schedule. It was found Knowledge Score among the farmers of Nadia district (37.37 ±3.55) was highest and in South Dinajpur (30.16 ±3.03) was lowest than the other three districts viz Birbhum (35.07 ±2.85), Malda (34.18 ±3.09) and Murshidabad (33.51 ±3.15). Study also revealed that the farmers of Nadia district were having more knowledge about improved animal husbandry practices.*

**Keywords:** Animal Husbandry, Aspirational Districts, Knowledge



## Introduction

Agriculture and related activities are important for rural farmers' socio-economic development, income generation, and well-being in India. Agriculture is a source of income for a large number of illiterate and unskilled people in India (Bhattacharjee *et al.*, 2021). Agriculture, on the other hand, is a seasonal employment sector with just 180 days of employment per year. Landless and low-land people rely on animals to supplement their income during the lean agricultural season. Livestock is a secondary source of income for many Indian families, particularly the resource poor who retain a limited number of animals. Milk from cows and buffaloes will provide livestock farmers with a steady stream of income from milk sales. Sheep and goats are utilised as a source of emergency income for the rural poor to meet expenses such as weddings, medical treatment, children's education, and housing renovations, among other things. For the owners, the animals also serve as moving banks and assets, offering financial stability.

Knowledge is the body of information held by an individual or by a culture which is an individual's intimate contact with facts. Knowledge helps in adoption of any improved or new technology or practices many times. Before implementation of different entrepreneurship development programme an assessment of the existing knowledge level of the farmers is the need of the hour. The five aspirational districts namely Birbhum, Nadia, Malda, South Dinajpur and Murshidabad as identified by the NITI Aayog, Govt. of India in the state of West Bengal have been selected for the study considering poverty, poor health, educational status and socio-economic characteristics etc. Keeping in view of all, a study was conducted to determine the knowledge level of the farmers in various aspirational districts of West Bengal, India.

## Materials and Methods

The study was conducted by Department of Biotechnology, Government of India, under the Biotech- KISAN (Krishi Innovation Science Application Network) mission, where West Bengal University of Animal and Fishery Sciences (a DBT Biotech-KISAN Hub and a State Agricultural University) collected the data of the present study. Biotech-KISAN mission is a scientist-farmer partnership scheme, launched in 2016, for agriculture innovation with a vision to improve the agricultural productivity and income of the farmers.

## Study Area

The present study was a cross sectional study, conducted in rural areas of West Bengal state (East India). The population size of west Bengal is 9.13 crore where the rural population is 6.22 cr (Census, 2011). The total number of rural households is 1,41,359 with agriculture households (HHs) was 63624 (farm families are 71,23,000) (Census 2011). The state produces 8% of country's food production and is spread on 88,75,200 hectares geographical area where about 56 lakh hectares is the cultivation area of the state (Census, 2011). West Bengal is broadly divided into six Agro-climatic Zones. Out of total 15 regions in India, West Bengal fall within three Agro-climatic Regions, i.e., Eastern Himalayan Region, Lower Gangetic Plain Region, and the Eastern Plateau and Hill Region (Planning commission, Govt. of India). Districts such as Darjeeling, Jalpaiguri, Coochbehar, Uttar Dinajpur, Malda, Nadia, Murshidabad, North 24 Paraganas, South 24 Paraganas, Howrah, Hoogly and Birbhum, Burdwan, Bankura, Paschim and Purba Medinipur, Purulia are covered under the Agro-climatic Zones.

## India Map Showing West Bengal State



Source: Map of India

## Map of West Bengal with All the Districts



Source: Map of West Bengal

## Data Collection

Pre-tested and modified interview schedule was used. Data on demographic and economic profile such as age, gender, education, religion status, occupation, income, land owned or leased, type of house and social profile such as association with hub, social participation were collected. Skills and knowledge-based data such as computer skills, use of ICT tools, knowledge on animal husbandry and aquaculture practices, sources of farm information and data on impact of biotech applications on yearly income of the farmers, demand of labour, impact on wages of labour were collected.

## Sampling Design

This study was conducted in purposively selected five aspirational districts (Birbhum (1020), Nadia (845), Malda (788), South Dinajpur (840), and Murshidabad (792), as identified by the NITI Aayog, Govt. of India, considering its poverty, poor health, educational status and socio-economic characteristics etc. in the state of West Bengal. A sample of 4285 number of farmers was randomly selected as respondents from one block of each district. All the selected variables were measured either by established scale or test or by developing schedule. The data were collected with the help of pre-tested structured interview schedule and the same were compiled, tabulated and analyzed statistically through the tools as- Mean+ SE, chi-square, correlation coefficient analysis for better interpretation of the findings to conclude the study.

## Ethical Approval

The study was granted by the West Bengal University of Animal and Fishery Sciences' Ethical Committee. The aims were explicitly communicated to the household and local government participants, who were also informed about the data collection in the consent form. Prior to recruitment, all participants gave their informed written consent.

## Statistical Analysis

SPSS 20.0 was used to do statistical analysis on the data. All of the variables were subjected to a normality test. The frequency distribution of categorical variables was tested using the Chi square test. For all statistical tests, a significance level of 1% and 5% was employed.

## Results and Discussion

The present study was made among the 4285 farmers of five aspirational districts of West Bengal as determined by NITI Ayog to assess their knowledge level. The analytical studies are depicted as follows:

Knowledge Score (Mean and SEM) generated using standard practice (Goswami, 2010) among the farmers in the aspirational districts of West Bengal in relation to improved farm practices of animal husbandry had been depicted in the Table 1.

**Table 1:** Knowledge Score (Mean  $\pm$  SEM) and knowledge level of the farmers of aspirational districts of West Bengal (N = 4285)

Category	Different factors	Knowledge score	Knowledge level (%)			Chi square value
		(Mean $\pm$ SEM)	Low ( $<30.00$ )	Medium ( $>30.00$ $<35$ )	High ( $>35$ )	
<b>OVERALL</b>		<b>34.98 <math>\pm</math> 3.22</b>	<b>59.15</b>	<b>31.75</b>	<b>9.1</b>	64.14**
<b>Districts</b>	Birbhum	35.07 $\pm$ 2.85 (1020)	62.1	28.3	9.6	62.85**
	Nadia	37.37 $\pm$ 3.55 (845)	57.86	30	12	
	Malda	34.18 $\pm$ 3.09 (788)	60	30	9.96	
	South Dinajpur	30.16 $\pm$ 3.03 (840)	48	39.6	12	
	Murshidabad	33.51 $\pm$ 3.15 (792)	54.08	34.29	11.63	
<b>Age</b>	Young Group (Up To 30 Years)	34.09 $\pm$ 2.82 (1114)	53.29	34.88	11.83	104.33**
	Most Active Group (30-60 years.)	33.85 $\pm$ 3.15 (2880)	53.66	34.6	11.74	
	Elder Group (Above 60 Years.)	34.28 $\pm$ 2.85 (291)	53.03	35.08	11.9	
<b>Religion</b>	Hindu	34.78 $\pm$ 3.09 (2655)	52.34	35.59	12.07	74.28**
	Muslim	33.45 $\pm$ 3.46 (1630)	54.16	34.23	11.61	
<b>Marital Status</b>	Married	32.89 $\pm$ 2.94 (3754)	54.93	33.65	11.42	57.58**

	Unmarried	33.45 ± 3.21 (411)	54.16	34.23	11.61	
	Widow/ Widower	34.74 ± 3.92 (120)	52.4	35.55	12.06	
<b>Occupation</b>	Labour	33.97 ± 2.20 (1488)	53.45	34.76	11.79	59.66.**
	Caste Occupation	35.01 ± 3.06 (104)	52.03	35.82	12.15	
	Migrants Labour	33.63 ± 3.00 (599)	61.18	26.46	12.37	
	Business	32.22 ± 3.37 (141)	55.85	32.97	11.18	
	Independent	34.08 ± 2.72	53.3	34.87	11.83	
	Cultivation	35.04 ± 3.34 (1750)	51.98	35.85	12.16	
<b>Caste</b>	General	34.85 ± 3.12 (1924)	52.25	35.66	12.1	64.65**
	Schedule Caste	33.36 ± 2.97 (510)	54.29	34.13	11.58	
	Schedule Tribe	32.98 ± 2.69 (290)	54.81	33.75	11.45	
	Other Backward Caste	35.19 ± 3.24 (1770)	51.78	36.01	12.21	
<b>Education of the farmers</b>	Illiterate	35.55 ± 3.21 (158)	51.29	36.37	12.34	58.36**
	Can Read Only	33.61 ± 3.12	53.94	34.39	11.67	
	Can Read and Write	33.65 ± 3.24	53.89	34.43	11.68	
	Primary	33.07 ± 3.12	54.68	33.84	11.48	
	Middle School	33.76 ± 3.18	53.74	34.54	11.72	
	High School	34.03 ± 2.63	53.37	34.82	11.81	
	Graduate	36.2 ± 3.43	50.4	37.04	12.56	
<b>Family type</b>	Nuclear Family	33.75 ± 3.43 (1237)	53.75	34.53	11.71	98.25**
	Joint Family	35.1 ± 3.24 (3048)	53.27	34.89	11.84	
<b>Family Size</b>	Small	33.77 ± 3.03	60.28	29.85	9.87	58.22**
	Medium	35.45 ± 3.06	54.16	34.23	11.61	
<b>House Type</b>	No house	33.28 ± 3.40 (281)	54.4	34.05	11.55	44.22**
	Hut	33.65 ± 2.97 (585)	53.89	34.43	11.68	
	Kutch House	34.06 ± 2.82 (1255)	53.33	34.85	11.82	
	Mixed House	34.77 ± 3.30 (1886)	52.35	35.58	12.07	
	Pucca House	36.5 ± 3.09 (137)	49.98	37.35	12.67	
	Mansion	37.1 ± 2.66 (136)	49.16	37.96	12.88	
<b>Land Holding</b>	No land/Land less	33.36 ± 3.18 (1139)	54.29	34.13	11.58	47.64**
	Up to 1 hectare	34.52 ± 3.27 (1560)	52.7	35.32	11.98	
	Up to 2 hectares	36.02 ± 3.34 (1231)	51.88	35.93	12.19	
	Above 2 hectares	36.24 ± 3.34 (350)	50.34	37.08	12.58	
<b>Training</b>	Training Received	33.21 ± 2.82 (679)	62.1	28.3	9.6	45.88**
	Training not received	37.07 ± 3.30 (3606)	52.71	35.31	11.98	

Analysis of variance in respect of district, age of the farmers, religion, marital status, occupation, caste, education of farmers, family type, family size, house type and land holding capacities had been presented in Table 2. It had been observed that there was no significant effect of all the variables like districts, age of the farmers, religion, marital status, occupation, caste, education, family type, family size, house type and land holding capacities on knowledge score. However, it was appeared that, Knowledge Score among the farmers of Nadia district (37.37±3.55) was highest and in South Dinajpur (30.16±3.03) was lowest than the other three districts viz Birbhum (35.07±2.85), Malda (34.18±3.09) and Murshidabad (33.51±3.15). The result indicated that the farmers of Nadia district were having more knowledge about improved animal husbandry practices. As such no previous work had been done in the aspirational districts; thus, the present results cannot be corroborated with. More interestingly it had been found that, the farmers having agriculture land holding above 2 acres (36.24±3.34) and having Pucca House (36.5±3.09) or mansion (37.1±2.66) were having more knowledge score about animal husbandry. Such findings were considered to be natural phenomenon of higher knowledge score as they preferred the improved

technology. The farmers having land particularly agro land more than 2 acre and economically solvent were fond of livestock rearing as a source of alternative family income. The improved technology for scientific livestock rearing is essential for improvement of their economic gain and that's why Knowledge Score was comparatively higher in them. The other factor like age, religion, occupation, education, caste, marital status, family size, house type had no impact on Knowledge Score of those farmers. However, the present result was in accordance with the finding of Goswami (2014).

**Table 2:** ANOVA of knowledge score of different category of the farmers of aspirational districts of West Bengal

SOV	df	Mean Square From	F value
Districts	4	21.23	1.85
Sex	1	12.96	1.13
Age	2	12.42	1.08
Religion	1	20.03	1.75
Marital status	2	41.4	3.62
Family type	1	8.44	0.74
Education	2	26.64	2.33
Training	1	5.19	0.45
Occupation	5	12.76	1.11
Caste	3	26.15	2.28
House Type	5	25.37	2.22
Land Holding	3	27.01	2.36
ERROR	4254	11.45	

\*\*  $P < 0.01$  \*  $p < 0.05$

Level of knowledge is an important factor to assess utilization of the improved technology among farmers. The farmers engaged in livestock farming were classified into three level of knowledge namely low (<30), medium (>30<35), and high (>35). The result of knowledge level of these three groups viz low, medium and high and the value was depicted in Table 1. It had been observed that, majority of farmers of Birbhum district (62.10%) were having higher percentage of low knowledge level in comparison to other four districts. In Nadia districts (57.86%) farmers had low level of knowledge followed by medium (30%) and high (12%) level of knowledge in improved livestock farming practices. In Malda district (60%) farmers had low followed by medium (30%) and high (9.96%) level of knowledge in improved livestock farming practices. Most interestingly, the farmers of South Dinajpur district had less low level of knowledge (48%) but higher medium (39.60%) and high (12%) level of knowledge which indicated these farmers were befitted for improved animal and fish farming practices. The farmers having agriculture land holding above 2 acres and having pucca house or mansion were more high or medium knowledge level about animal husbandry in comparison to others.

Economic solvency was an important factor for acquiring knowledge apart from education of the farmers. The chi-square test (Table 1) revealed that the difference in value in knowledge level of these farmers based on different category had a highly significant effect ( $p < 0.01$ ). The knowledge level about livestock farming among these farmers of these aspirational districts needed to be assessed for formulation of effective work plan for making sustainable livelihood through livestock rearing which is a promising endeavor of the present study. The result had showed low level of knowledge among these farmers which indicate their lacking in application of improved animal husbandry practices which was to be similar with the findings made by Singh *et al.* (2020) in Punjab. Kavithaa *et al.* (2014) had also different observation with the present findings as they have conduct their studies SHG of Kerala. In a study made by Singh *et al.* (2015) among the tribal farmers of Mandla and Seoni district of Madhya Pradesh had also found different type of observation due to the lacking of knowledge among that community.

The correlation co-efficient of each of the personal and socio-economic Characteristics with the knowledge level of respondent have been furnished in Table 3. The study depicted that, overall in five districts out of 11 independent variables, religions, occupation and family type showed negatively significant ( $p < 0.01$ ) correlation with knowledge level of farmers in five aspirational districts in West Bengal. The two variables marital status and training showed highly positive correlation whereas the remaining variables viz., age, caste, education, house type and land holding did not establish any significant relationship with the knowledge level of farmers in five aspirational districts in West Bengal. These findings are similar with the findings of Goswami (2014).

**Table 3:** Spearman Correlation of Knowledge Level of the Farmers of Aspirational Districts of West Bengal

Factors	Districts	Age	Religion	Marital status	Occupation	Caste	Education of the farm women	Family type	Training	House Type	Land Holding	Knowledge level
Districts	1	-0.16*	0.142*	-.640**	0.383**	.301**	-.628**	0.01	-.290**	.234**	-0.1	-0.137*
Age		1	0.02	.164**	-0.1	-0.396**	.150*	0.1	0.1	0.01	0.1	0.001
Religion			1	-.269**	.403**	0.127*	.333**	.418**	.170**	-0.1	0	-0.336**
Marital status				1	-.358**	-0.223**	.528**	-0.1	.245**	-.218**	.317**	0.220**
Occupation					1	0.444**	0.01	.353**	0.1	0	.353**	-0.242**
Caste						1	-.153*	0.1	0.01	0.1	0.203**	-0.109
Education of the farm women							1	0.267**	0.407**	-.337**	0.401**	-0.108
Family type								1	0.608**	0.1	0.125*	-0.258**
Training									1	-0.1	0.248**	0.358**
House Type										1	-0.323**	0.094
Land Holding											1	0.024
Knowledge level												1

\* $P < 0.05$  \*\*  $P < 0.01$ 

## Conclusion

In conclusions the livestock rearing is a significant contributor in rural economy and plays vital role to raise socio-economic status of the rural people. The study on knowledge index of farmers in various aspirational districts of West Bengal explore that, improved technology for scientific livestock rearing is essential for economic gain of stakeholders and farmers. Results of the study revealed that Knowledge Score among the farmers of Nadia district was highest and in South Dinajpur was lowest than the other three districts viz. Birbhum, Maldah and Murshidabad. Study also revealed that the farmers of Nadia district were having more knowledge about improved animal husbandry practices. Therefore, special attention must be given before implementing any livestock related entrepreneurial programme among them.

## Acknowledgement

We express gratitude to DBT, Govt. of India for their funded project namely “Establishment of Biotech KISAN Hub” and for the timely help and cooperation during the research work. We also express our sincere thanks to the Directorate of Research Extension and Farms, West Bengal University of Animal and Fishery Sciences for guidance, support and continuous encouragement.

## Conflict of Interests

There is no conflict of interest.

## Publisher Disclaimer

IJLR remains neutral concerning jurisdictional claims in published institutional affiliation.

## References

1. Bhattacharjee S, Dhara K. C., Kesh S. S., Ghosh S., Dasgupta (Das) P., Giri A. K., Sarkar B., Roy S., Bose S., De A (2021). Study on Socio-Economic Status and Constraints Faced by the Livestock Farmers of the

- Aspirational Districts of West Bengal, India. Page No.: 331-340, Volume V, Issue VII, July 2021, *International Journal of Research and Innovation in Social Science (IJRISS)*, ISSN 2454-6186.
2. Goswami, A. (2010). The Impact of Extension Education on the Social, Psychological and administrative behaviour of the livestock owners of the Sundarbans, West Bengal. Ph.D. thesis submitted to the University of Kalyani, West Bengal.
  3. Goswami, A., Roy, N., Mazumdar, A.K. and Duttagupta, R. (2014). Behavioural study of the livestock owners to enhance the productivity in saline belt of Sundarban, West Bengal. *Indian Journal of Animal Health*, 39(2): 42-46.
  4. Kavithaa, N. V., Jiji R.S. and Rajkumar N. V. (2014). Knowledge and attitude of the members of women self – help groups in goat farming in Thrissur district, *Int. J. Sci., Environ. Technol.*, 3(1):198–202.
  5. Singh, R., Gour, S. and Mandal, M. K. (2015). Assessment of knowledge level of tribal farmers regarding scientific animal husbandry practices of Madhya Pradesh. 4th International Conference on Agriculture and Horticulture July 13- 15, 2015 Beijing, China, 4(2):80.
  6. Singh, S., Kasrija, R., and Singh, P. (2020). Determination of knowledge level of goat farmers about breeding practices in Punjab. *Journal of Entomology and Zoology Studies*; 8(2):198-200.

\*\*\*\*\*