



Open Access

Res. Agric. Livest. Fish.

Research Article

Vol. 4, No. 3, December 2017: 181-185.

SOCIO-ECONOMIC CONDITION, CATTLE PRODUCTION AND MANAGEMENT SYSTEM IN A COMMUNITY AT PABNA DISTRICT OF BANGLADESH

Md. Azharul Islam Talukder¹, Md. Shahjahan^{2*}, Md. Najmul Haque¹, Mohammed Sirajul Islam², Seikh Masudur Rahman², Mst. Nilufa Yeasmin¹, Sirazum Munira², Md. Rezwanaul Habib², Md. Salahuddin², Md. Mostain Billah² and Md. Abu Haris Miah²

¹Bangladesh Livestock Research Institute, Savar, Dhaka-1341, ²Bangladesh Livestock Research Institute (BLRI) Regional Station, Baghabari, Sahajadpur, Sirajgonj-6770, Bangladesh

*Corresponding author: Md. Shahjahan; E-mail: sajubau@gmail.com

ARTICLE INFO

ABSTRACT

Received

19 November, 2017

Accepted

24 December, 2017

Online

31 December, 2017

Key words

Household survey
ONBS
Pabna cattle
Genetic improvement

The objective of this study was to clarify the inside of socio-economic condition and cattle production scenario in few areas of Pabna district. Data of socio-economic condition of farmers, cattle population, genotype and overall management were collected from three villages at Bera upazila of Pabna district during August to September in 2017. The collected data were tabulated and analyzed following one-way ANOVA including descriptive statistics. It was observed that the age of farmers were average 42 years with 19 years of average farming experiences. Agriculture was found as primary occupation (47.37%) followed by house wife (15.79%) and animal husbandry (10.53%). Among the total livestock population, 52% (n=286) was cattle with different genotypes but the frequency of local Pabna cattle was highest (70%). About 79% cattle were reared intensively at home because the areas were surrounded by water. The average peak day milk yield (4.56 liters) of local Pabna cattle was significantly ($p < 0.001$) lower than Holstein crossbred (7.43 liters). The cattle feeding system was mostly intensive (77%) followed by semi-extensive (23%) with 60%, 49% and 98% restricted feeding for straw, green grass and concentrate feeds in the studied households. The capacity building training of farmers including different farm oriented facilities would enhance a dairy development programme in those areas from local Pabna cattle which could contribute their socio-economic condition as well.

To cite this article: MAI Talukder, M Shahjahan, MN Haque, MS Islam, SM Rahman, MN Yeasmin, S Munira, MR Habib, M Salahuddin, MM Billah and MAH Miah, 2017. Socio-economic condition, cattle production and management system in a community at Pabna district of Bangladesh. Res. Agric. Livest. Fish., 4 (3): 181-185.



This is an open access article licensed under the terms of the Creative Commons Attribution 4.0 International License

www.agroaid-bd.org/ralf, E-mail: editor.ralf@gmail.com

INTRODUCTION

The socioeconomic condition of an area represents its population density, education levels, income status and other social issues including living status of the inhabitant. Livestock rearing is one of traditions to change few parts of socioeconomic conditions. However, it is a major concern of agricultural sector which contributes a significant part to enhance the GDP and mainly reared in the rural area.

The dairy system in Bangladesh is characterized by small-scale operations, coupled with crops and other on-farm activities. Based on the dairy cattle population, Bangladesh has secured 15th position among the top dairy cattle populated countries in the world (FAO, 2012). About 80% indigenous cattle population in Bangladesh reared in the rural area with several native cattle genetic resources including local Pabna cattle with low input management system. However, the introduction of artificial insemination is changing the present situation of cattle genotype by crossbreeding or grading up processes. There are several studies conducted on livestock production system in specific selected areas. However, such type of scenario in *Char* area is very limited for cattle rearing. Therefore, the research was performed to find out the socio-economic of farmers and their the livestock production scenario (especially Pabna cattle) in three selected villages under Bera upazila of Pabna district for the establishment of Open Nucleus Breeding Herd combined with BLRI Regional Station, Baghabari, Sirajgonj through selective breeding among the cattle population.

MATERIALS AND METHODS

Data focused on socio-economic condition of farmers, their cattle population including genotypes and overall management system were collected from total 57 households of three selected villages (Umarpur, Khorbagan and Hatail Aralia) under Bera upazila of Pabna district with a pretested survey questionnaire. The collected data were compiled, tabulated and analyzed using one-way ANOVA with descriptive statistics by SPSS version 16 (SPSS Inc. Chicago, USA).

RESULTS AND DISCUSSION

The results showed that average age of respondents was 42 years with 7 family members per household (Table 1). The farmers replied their farming experience about 19 years having 25, 132 and 19 decimals of homestead, crop cultivation and grass land, respectively. The average annual income of the farmers was found 83,545 Taka.

Huque (2011) reported a certain number of rural dairy farmers were landless and 61.10% of the respondent had less than 2.49 acres of total land. In a rural area of Mymensingh district, the annual income found 61,260 BDT by Shahjahan and Bhuiyan (2016) which was lower than the present study and indicating comparatively better livelihood in that area.

Table 1. Farming and income status of farmers in the surveyed areas

Variable	Mean	SE
Age of respondent (year)	42.25	1.70
Family member	7.37	0.39
Farming experience (year)	19.11	1.61
Homestead land (decimal)	25.26	2.48
Crop cultivation land (decimal)	131.67	33.90
Grass land (decimal)	18.91	9.35
Fallow land (decimal)	19.71	12.27
Annual income (Taka)	83545.65	10596.08

Agriculture was found as the most common primary occupation (47.37%) of respondents followed by house wife (15.79%) and animal husbandry (10.53%) (Figure 1). Agriculture was found as primary occupation followed by labor and business in a rural area of Mymensingh district (Shahjahan and Bhuiyan, 2016).

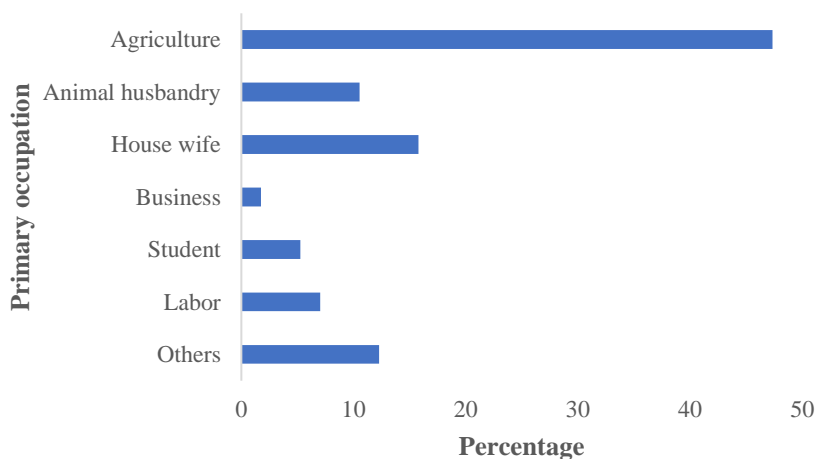


Figure 1. Primary income sources of respondents in studied areas

Among the total livestock population, 52% (n=286) was cattle in the villages surveyed (Figure 2a) in which 70%, 11% and 14% were local Pabna, local (others) and Holstein Friesian crossbred cattle, respectively (Figure 2b). In a study on crossbred of Pabna and Sirajgonj districts in Bangladesh, Shahjahan (2017) observed 43%, 27%, 16% and 14% of Local×Holstein Friesian, Local×Holstein Friesian×Sahiwal, Local×Holstein Friesian×Jersey and Local×Jersey genotypes, respectively.

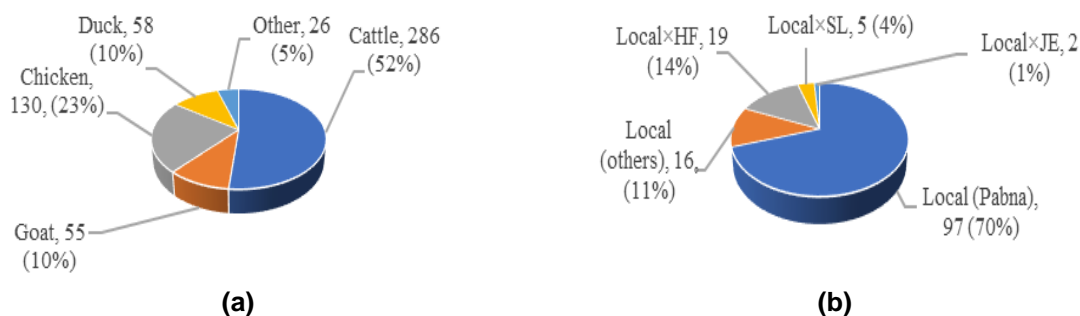


Figure 2. Cattle population and their genotype in survey areas at Bera upazila of Pabna district

During the survey period, 79% cattle were reared intensively at home because the areas were surrounded by water and 21% found as both home and field rearing (data not shown). The comparative analysis of local Pabna cattle (4.56 liters) and Holstein crossbred (7.43 liters) revealed significant differences ($p < 0.001$) for peak day milk production but not for other studied traits (Table 2).

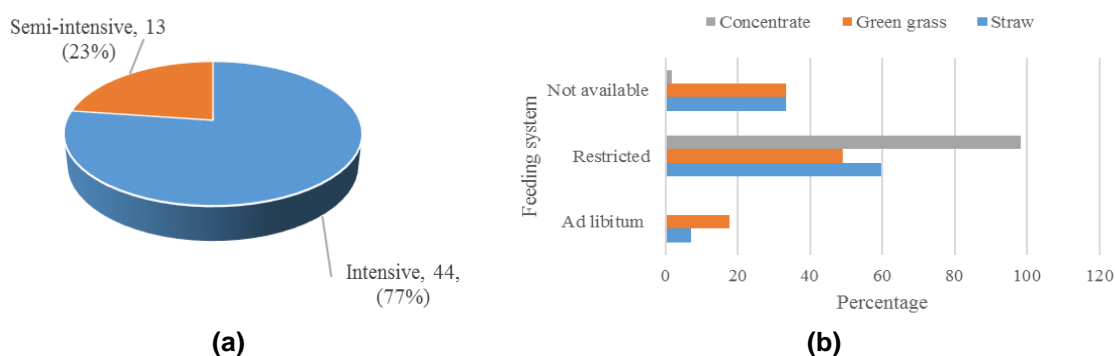
The peak milk production of indigenous cattle recorded 3.90 liters while 10.92 liters in crossbred with an average 1.86 liters and 5.94 liters in rural areas of Dinajpur district, respectively (Islam et al., 2010). Hossain et al. (2011) and Deb et al. (2007) reported 1.50 to 1.76 AI per conception in the local cattle varieties in Bangladesh. Mamun et al. (2015) identified 1.21 AI services per conception. All the findings were slightly higher than the present study and these results indicating better production and reproductive efficiency in the cattle populations of our study areas.

Table 2. Production and reproduction efficiency of local Pabna and crossbred cattle in survey areas

Trait	Local Pabna (n=54)		Holstein cross (n=7)		P-value
	Mean	SE	Mean	SE	
Lactation period (d)	206.94	5.52	217.14	17.96	0.542
Peak day milk production (l)	4.56	0.22	7.43	1.32	0.000
Service for last pregnancy (no.)	1.26	0.08	1.14	0.14	0.614

The cattle feeding system were mostly intensive (77% followed by semi-intensive (23%) in the surveyed households (Figure 3a). Beside *ad libitum* feeding system (7% HHs for straw and 18% HHs for green grass) restricted or controlled feeding was practiced in straw, green grass and concentrate feeds for 60%, 49% and 98%, respectively (Figure 3b). The allowed green grass was comparatively lower in crossbred than local cattle (Table 3) which might be the reason of grazing facilities of those cattle.

Islam et al. (2010) observed that feed cost for indigenous (96%) and crossbred (95.76%) cows was almost similar. Huque et al. (2002) stated similar results with our findings for average daily allowance per animal of individual feed was 4.14 \pm 0.90 kg straw, 7.30 \pm 1.73 kg cut and carry grass and 2.61 \pm 0.36 kg concentrates in cooperative dairying areas of Bangladesh.

**Figure 3.** Feeding system of cattle population in the community**Table 3.** Average daily feed intake of cattle population in the study areas

Cattle	Straw (kg)		Green grass (kg)		Concentrate (kg)	
	n	Mean \pm SE	n	Mean \pm SE	n	Mean \pm SE
Local	29	6.86 \pm 0.62	24	12.63 \pm 1.51	49	2.32 \pm 0.22
Crossbred	5	8.00 \pm 0.84	4	8.50 \pm 0.96	8	3.28 \pm 0.93
Probability		0.465		0.283		0.151

CONCLUSION

It is concluded that socio-economic condition of the farmers in study areas was not well developed. But the farmers were mostly indigenous cattle producer with local management system having better sustainable production and reproductive capabilities than crossbred. Thus capacity building training of farmers to ensure controlled breeding following Open Nucleus Breeding System for selective breeding, efficient feeding, proper housing and health management may enhance the development of local Pabna cattle under the community of dairy development research project areas in Pabna district of Bangladesh.

COMPETING INTEREST

No competing interests.

ACKNOWLEDGEMENTS

The authors are grateful to Dairy Development Research Project of Bangladesh Livestock Research Institute for required funding during survey and other research activities.

REFERENCES

1. Deb GK, KS Huque and MH Al-faruque, 2007. Genetic evaluation of Pabna Cattle at BLRI research farm, In Research Report, Animal production Research Division, BLRI, Savar, Dhaka, Bangladesh, pp: 116-198.
2. FAO, 2012. FAOSTAT statistical database (available at faostat.fao.org).
3. Hossain SHJ, AKFH Bhuiyan, KS Huque, NR Sarker, N Sultana and MK Alam, 2011. Productive and reproductive potential of Red Chittagong cattle (RCC) under in-situ and ex-situ conditions. Bangladesh Journal of Livestock Research, 18: 7-13.
4. Huque KS, MM Rahman and MR Islam, 2002. Farming characteristics of cooperative dairy production systems in Bangladesh. Bangladesh Journal of Livestock Research, 9: 17-29.
5. Islam MM, AH Topader and A Rob, 2010. Comparative study on the cost benefit between indigenous and cross bred cows reared in rural area of Dinajpur District. Bangladesh Journal of Animal Science, 39: 191-196.
6. Mamun MJA, MAS Khan, MAH Sarker and MN Islam, 2015. Productive and reproductive performance of Holstein Friesian crossbred and indigenous cow under small holder farming system. Bangladesh Journal of Animal Science, 44: 166-170.
7. Shahjahan M and AKFH Bhuiyan, 2016. Socio-economic condition and indigenous poultry production scenario in a selected cluster area of Bangladesh. Asian-Australasian Journal of Bioscience and Biotechnology, 1: 557-563.
8. Shahjahan M, 2017. High yielding dairy cattle husbandry and their production performance at Baghabari Milk Vita areas of Bangladesh. Asian-Australasian Journal of Bioscience and Biotechnology, 2: 60-67.