



Status and challenges of livestock farming community in Sunderban India

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Sunderban is a densely populated and agro-based region of the country where most of the people are dependant for their livelihood mainly on traditional subsistence farming such as cropping, livestock and fishery operations. The status of the farming community in Sunderban with special reference to the livestock and poultry is not well documented. So, a livestock survey was conducted under National Agricultural Innovation Project (NAIP) in two blocks of South 24 Parganas district of West Bengal at the outset of the project. The salient findings documented in this paper.

Data collection: A total of 120 households, 20 from each village were randomly surveyed with scheduled questionnaire during Oct-Nov 2010 from 2 blocks such as Kakdwip and Namkhana of South 24 Parganas district at Sunderban. The questionnaire was prepared by taking into account of family information, livestock and poultry population, production, reproduction, disease incidence, problems and prospects of livestock farming at Sunderban. The data were analyzed with ANOVA using SPSS for Windows v.17.0 program and expressed as mean±standard error (SE).

Population: The average family size of the area under survey was 5.38±0.50 with bigger family size in Kakdwip (5.88) than in Namkhana (4.88) block. The cattle, poultry and duck population was less while sheep and goat population was more in Kakdwip (3.13, 4.33, 0.50, 0.32, and 2.08 respectively) than Namkhana (3.48, 4.37, 0.62, 0.22, and 1.75 respectively) block. The household cattle, goat, sheep, chicken, and duck keeping were 3.31±0.17, 1.92±0.17, 0.27±0.05, 4.35±0.02 and 0.56±0.06 respectively. West Bengal as a whole stands sixth position in cattle population (Livestock census 2003, GOI) but twelfth position in milk production during 2008–09 (Dept. of Animal husbandry,

Dairying and Fisheries, Ministry of Agriculture, GOI) among the Indian states. Most of the cattle were indigenous non-descript except few progressive farmers having Jersey cross. Black Bengal goat and Garole sheep being the native of West Bengal were not uncommon in the region. Gir cattle, Jamunapari goat, Kuroiler and desi duck were also seen in traces.

Management: Livestock and poultry rearing in Sunderban were mainly tended by women. They moved with their cattle for grazing throughout the day except *kharif* season when the animals were stall fed with roughages *ad lib*. Weaning of the calves had not been practiced and milking cows and bullocks were sent for grazing in villages except new born calves. Milking cows and bullocks were given some amount of concentrate (1/2 to 1 kg/day), which was prepared from crushed pulses, grain husk, oil cakes, cotton seed, etc. Proper shelter was provided to the animals especially in winter nights. Natural mating was practiced in the entire breeding tract except few farmers with Jersey cross who depended on artificial insemination. Natural mating was done @ Rs 80/ and @ Rs 50/per mating in cattle and goat respectively. Artificial insemination was available to the farmers at door step @ Rs 100–150/per service.

Production and reproduction: Productive and reproductive performances of the indigenous and Jersey cross cows are presented in the Table 1. The average household total revenue from the animal source was ₹ 20141.80±1360.52 per annum at Sunderban. The average sales proceeds of milk were calculated on the basis of the average quantity of milk produced per lactation per cow and multiplied by the average price received per litre of milk. The milk was sold @ ₹ 13/per kg. The average household revenue from cow milk was calculated to be ₹ 4712.07±307.02. Significant difference (P<0.05) was observed in the average milk yield/lactation in indigenous and Jersey cross cows. The average milk yield/lactation was 238.72±16.46 kg and 1420.0±260.0kg with the average production of milk per day per animal, 1.07±0.10kg and 6.69±0.99 kg in indigenous and Jersey cross cows

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Table 1. The productive and reproductive performances of indigenous and Jersey cows in Sunderban.

Parameters	Indigenous	Jersey Cross
Milk yield/day/animal (kg)*	1.07±0.10 ^a	6.69±0.99 ^b
Milk yield/lactation (kg)*	238.72±16.46 ^a	1420.0±260.0 ^b
Birth weight (kg)**	13.75±0.05 ^a	18.74±0.07 ^b
Age at puberty (days)**	1382.25±39.25 ^a	643.00±7.00 ^b
Age at first service (days)**	1442.25±38.25 ^a	705.00±15.00 ^b
Age at first calving (days)**	1742.25±37.25 ^a	1007.00±23.00 ^b
Calving to first service interval (days)	120.25±1.25	122.00±8.00
Calving to conception interval (days)	135.25±1.75	138.00±12.00
Calving interval (days)	405.00±1.50	408.00±12.00
Number of service/conception	1.36±0.01	1.36±0.04
Lactation length (days)	224.88±6.72	232.00±2.00
Number of Lactation	6.03±0.11	6.77±0.44

* p<0.05; ** p<0.01.

^{a, b} - Values bearing different superscripts in a row differ significantly.

respectively. Sarkar (1995) demonstrated the milk production from indigenous and crossbred dairy cows were 1.63 and 6.74 kg per day, respectively, which is more than the present findings. The lactation period for indigenous and Jersey cross cows were 224.88±6.72 and 232.00±2.00 days, respectively, which is lesser than the report of Rokonuzzaman *et al.* (2009). Mostly, the cattle were maintained at Sunderban to meet out the family milk and fuel requirement. Due to unavailability and unaffordability to the LPG connection, 80% of the dung was used for domestic fuel purpose and the remaining for agricultural purposes. A dairy cow produced average 11.5 kg cow dung as described by Rashid *et al.* (2001). The price of the cow dung was imputed by taking the average price at which cow dung was sold at the locality. The cost of the cattle dung was @ Re 0.80 when sheep and goat manure was @ Re 1/per kg. The average household revenue from cattle dung was calculated to be ₹ 8311.05±867.48. The male calves were sold after 1 year of age @ ₹ 1200 each and the female calves were maintained for further breeding. The average rate of lamb and kid sold in the local market was @ ₹ 1150 each. Buffalo population was nil in the surveyed region. The chicken and duck live weight rate per kg was @ 130 and 150 while the egg rate was @ ₹ 3 and 3.50 respectively. The maximum household income (in ₹) from the animal husbandry activities were—from cattle (10742.16±1242.88) followed by poultry (3333.75±174.58), goat (1686.17±5.25), sheep (398.44±141.73) and duck (358.67±112.08). The calculated per capita consumption of milk per day was 124±0.02g, egg and poultry meat per year was 10.22±3.76 number and 2.09±0.48 kg, respectively, in Sunderban, which was much lower than the Indian Council of Medical Research (ICMR) recommendations. Despite India being the largest milk producer, producing 108.5 million

Table 2. Problems faced by the farmers on livestock and poultry management in Sunderban (n=120)

Problems	Percent of farmers
Lack of training	98.3
Low price of milk	96.7
Lack of credit facilities	95.8
Milk marketing	94.2
Shortage of animal feed	87.5
Medicine unavailability	73.3
Veterinary services	69.2

tonnes of milk per annum, the per capita availability of milk is one of the lowest in the world with an average of 258g during 2008–09 (Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture, GOI) and further lower at Sunderban, India. Being fourth largest egg producer in the world, producing 48 billion eggs per annum, the per capita consumption in India is only 47 eggs per annum as compared to the European Union and the USA where it is 230 eggs per annum (FAO, USDA), wherein at Sunderban it was only 10.22 eggs. National per capita average consumption of poultry meat is about 2.2 kg per annum (FAO) but at Sunderban it was 2.09 kg.

The average birth weight in both indigenous and Jersey cross was lesser than the reports of Rokonuzzaman *et al.* (2009) and Kabir and Islam (2009). Age at puberty, age at first service and age at first calving were found significantly more (P<0.01) among indigenous than Jersey cross population. Number of service/conception reported in the present study was less than the report of Rokonuzzaman *et al.* (2009) and Kabir and Islam (2009).

The problems faced by the farmers were shown in the Table 2. The solutions obtained from our interaction with the farmers were such as fodder cultivation program by the Government subsidy on animal feed, easy bank loan system, co-operatives on dairy farming, setting up of the milk chilling centres, increasing the number of livestock health care units, proper vaccination program, crossbreeding, introduction of new breeds of sheep and goat, introduction of Kuroiler, mixed farming, encouraging and engaging the self help groups for organized farming and training and motivation by Government personnel.

Disease incidence: The indigenous animals are considered as hardy with disease resistance with low overall mortality. Highest mortality was observed from birth to one month of age. Male calves had higher mortality than females during this stage. Mortality was very marginal after one year of age. Bronchopneumonia and pneumoenteritis were the major causes of mortality in calves (Gaur *et al.* 2003). A few cases of reproductive disorders i.e. dystokia, abortion, retention of placenta, and prolapse had also been noticed by the farmers. Hemorrhagic enteritis, blackquarter and foot-and-mouth diseases were observed in cattle during monsoon.

Ranikhet disease was observed in poultry and duck during summer. Accessibility and availability of the livestock health care unit were insufficient in proportion to the livestock population. In some villages, NGOs organized health camp once or twice in a year with farmers' participation.

After understanding the crux of the challenges faced by the farmers, we have organized 7 livestock/poultry health camps at Sunderban in collaboration with the line department with the involvement of 601 families. The activities such as vaccination against foot -and-mouth disease, hemorrhagic septicemia, blackquarter, goat pox, Ranikhet disease, deworming, application of external parasiticide, artificial insemination, pregnancy diagnosis, and treatment for infertility and illness were done at free of cost for the welfare of the community. The training program was organized in different phases with the active participation of 239 farmers.

SUMMARY

This study showed that the per capita consumption of milk per day at Sunderban was only 124 ± 0.02 g despite India being the largest producer of milk. Moreover, India is the fourth largest egg producer in the world but the per capita consumption at Sunderban was only 10.22 eggs and poultry meat consumption was about 2.09 kg per annum as per the present study. So, it needs intensive care and new policies to develop the livestock/poultry industry towards the upliftment of the down trodden community and their health in Sunderban.

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REFERENCES

- Gaur G K, Kaushik S N and Garg R C. 2003. The Gir cattle breed of India - characteristics and present status. *Animal Genetic Resources Information* **33**: 21–29.
- Kabir F and Islam M R. 2009. Comparative study on productive and reproductive performance of local and different crossbred dairy cows at Daulatpur, Khulna in Bangladesh. *Bangladesh Research Publications Journal* **3** (2): 909–14.
- Rashid M M, Roy B C, Asaduzzaman M and Alam M M. 2007. Study of the dairy cattle management systems at farmer's level in Jessore district of Bangladesh. *Pakistan Journal of Nutrition* **6** (2): 155–58.
- Rokonuzzaman M, Hassan M R, Islam S and Sultana S. 2009. Productive and reproductive performance of crossbred and indigenous dairy cows under smallholder farming system. *Journal of Bangladesh Agricultural University* **7**(1): 69–72.
- Sarker M A. 1995. 'Economic analysis of dairy cattle enterprise and its pattern of contribution to Farm income in a selected area of Bangladesh.' M.S. thesis, Department of Agricultural Economics, B.A.U. Mymensingh, Bangladesh.

Errata

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81(11) Page 1126 please read R S Pamane as S P Ramane.