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The productive and reproductive performance of indigenous buffaloes at Kawkhali Upazilla, Pirojpur in Bangladesh

Md. Hafizur Rahman^{1*}, Suvanker Datta², Md. Ahsan Ulla Manik², Md. Humayun Kabir¹, Milton Talukder³ and Md. Abdul Matin³

¹Animal Health Research Division, Bangladesh Livestock Research Institute, Savar, Dhaka-1341, Bangladesh

²Department of Livestock Services, Dhaka, Bangladesh

³Faculty of Animal Science & Veterinary Medicine, Patuakhali Science & Technology University, Patuakhali, Bangladesh

*Corresponding author: Md. Hafizur Rahman, Animal Health Research Division, Bangladesh Livestock Research Institute, Savar, Dhaka-134, Bangladesh. E-mail: hafiz.vet@blri.gov.bd

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Abstract: The productive and reproductive performance of indigenous buffaloes at Kawkhali Upazilla under Pirojpur district was studied. Fifty seven (57) buffalo owners were interviewed by written interviewed paper from Kawkhali Upazilla under Pirojpur district in 2010. Out of 57 families 30 containing 45 milch cows, 34 dry cows, 42 heifer calves, 23 bull calves and 17 bull which were counted for calculation. The study demonstrated that the distribution of buffalo populations were scattered and the average buffalo populations were 5.37 per house-holds, age at puberty 45.03 ± 6.97 months, lactation length 242.60 ± 41.46 days, milk yield 2.35 ± 0.703 liters/day, gestation period 317.47 ± 6.57 days, body weight 23.77 ± 5.20 kg/calf, age at first calving 55.33 ± 7.20 months, calving interval 650.93 ± 79.57 days and average post partum heat period was 235.90 ± 52.24 days. These data will be helpful for future research and also give a guideline for buffalo development in Bangladesh.

Keywords: buffalo; productive performance; reproductive performance; Kawkhali; Pirojpur

1. Introduction

Livestock plays an important role in the subsistence agricultural economy of Bangladesh. Buffaloes are multipurpose animals among these animals. They are also provided the necessary draught power for ploughing, transport, threshing sugarcane and oilseed crushing. They are mainly used for draught purpose in South East Asian countries, as a source of milk in Indian subcontinent, Middle-East, Egypt, Bulgaria, Italy etc. and for meat in Pakistan, Iraq, Philippines, Brazil and other countries. There are three types (river, swamp and river × swamp) of buffaloes are randomly distributed in 40 countries including Bangladesh (Cockrill, 1982). River buffaloes are milk types (recognized as milk machine in India) whereas swamp buffaloes are draught and meat types. In Bangladesh, the buffalo population is of the swamp types which produces very little amount of milk. The buffalo plays an important role in meat and milk production especially in Asia. Buffalo also known as ‘Asian Animal’ plays an important role in farmer’s economic life, being an integral part of the farming system. It has been an important component of the mixed farming system in Bangladesh. The mutual dependence of buffalo and crop sector can hardly be over-emphasized. The crop sector provides feed and fodder such as paddy straw, rice bran, oilcakes, pulse bran etc. to the buffalo sector. On the other hand, buffalo sector supplies bullocks to the crop sector for tillage, carrying and threshening operations. The relationship between the two sectors is, therefore complementary rather than competitive. Buffalo is also called “Black gold”. Bangladesh possesses 0.85 million buffalo heads (FAO, 1997). It is one of the most important sources of market milk in Bangladesh. It is economically important in this region and could be used as a “small tractor” for farmers and its milk and meat are rich in nutrients. The other advantages associated with buffaloes are their draught capacity

and disease resistant power. According to the latest estimate total world population of buffaloes is more than 159.0 million (FAO, 1989), of which about 134.0 million are found in Asia. Bangladesh recorded the highest increase of buffalo population in the world of 159% (FAO, 1986). Despite their important role in the national economy and their outstanding production potentials, these animals are neglected in Bangladesh. They are often called non descriptive types (Cockrill, 1982). In spite of these problems recently some people have shown interest for rearing of small buffalo farms.

Therefore, the present study was conducted to determine the productive, reproductive performance of indigenous buffaloes and to identify the problems of raising indigenous buffaloes and to make recommendations for better production performance of indigenous buffaloes.

2. Materials and Methods

2.1. Experimental area

At first, survey was done randomly in different villages of Kawkhali Upazilla to find out distribution pattern i.e. the buffalo number per house-hold, buffalo population dynamics and their utility. Though this Upazilla is situated at district but geographically this is adjacent, riverine and coastal part. The 57 families of buffalo owners were taken from Kawkhali Upazilla under the District of Pirojpur for this study. Data were collected by the researcher himself in 2010 in order to obtain reliable data.

2.2. Methods of data collection

In order to make the data collection program successful, researcher himself visited every household of selected area during the study period. Direct interview method was used for collection of information. Information's given by farmers were recorded on interview schedule and kept for future analysis.

2.3. Parameter studied

The data collection schedule was designed in accordance with objectives of the research. It was designed in a simple manner to get accurate information from the farmers. Before preparing the final schedule a preliminary schedule was developed in accordance with objectives of the study. The schedule obtained major items of information such as- general identification and information of the selected livestock owners, lactation length of the indigenous buffaloes, daily milk yield, gestation length of the indigenous buffaloes, birth weight of calves, age at first calving, calving interval, post partum heat period, age at puberty. Data collected from this study were processed, tabulated and statistical analysis was mainly done through setting the data in the completely randomized design after Snedecor and Cochran (1980) to find out the differences for different parameters such as percentages, mean, standard deviations etc. The number of buffaloes under the selected Upazilla has been shown in Table 1.

Table 1. Average number of buffaloes per house-holds at Kawkhali Upazila under the district of Pirojpur.

Types of buffaloes	No. of buffaloes	No. of house holds	Total No. of buffaloes	Average
Milch cow	45			
Dry cow	34			
Heifer calf	42	30	161	5.37
Bull calf	23			
Bull /Bullock	17			

3. Results and Discussion

The purpose of this study was to determine the productive and reproductive performance of indigenous buffalo cows. Productive and reproductive performances of the buffalo cows were measured by population size and distribution pattern, age at puberty, lactation length, milk yield, gestation period, birth weight, age at first calving, calving interval and post partum heat period which were given in Table 2.

Table 2. Productive and reproductive performance of indigenous buffalo at Kawkhali Upazilla under the district of Pirojpur.

Parameters	Mean \pm SD
Age at puberty (Months)	45.03 \pm 6.97
Lactation length (Days)	242.60 \pm 41.46
Milk Yield (L /D)	2.35 \pm 0.703
Gestation period (Days)	317.47 \pm 6.57
Birth Weight (kg)	23.77 \pm 5.20
Age at first calving (Months)	55.33 \pm 7.20
Calving interval (Days)	650.93 \pm 79.57
Post partum heat period (Days)	235.90 \pm 52.28

3.1. Population size and distribution pattern

The average number of buffalo of 30 families at Kawkhali Upazilla under Pirojpur district was 5.37 per households. This finding is supported by Faruque *et al.* (1990) who reported that buffalo number per house-hold were 5.78 and 5.57 in the costal and hilly areas respectively in Bangladesh. He further mentioned that the buffalo number per house-hold were 2.2 in the plain land. Hussen (1990) mentioned the total number of buffaloes in Tangail district as 24537. He also mentioned the number of buffalo per household of Modhupur Upazilla, Tangail district 3.75 ± 0.54 .

3.2. Age at puberty

The average age at puberty of indigenous buffaloes at the studied area was 45.03 ± 6.97 months and this findings is agreed by Jainudeen (1984) who reported that the age at puberty of buffaloes were delayed (42-48 months).

3.3. Lactation length

The average lactation length of indigenous buffaloes at Kawkhali Upazilla of Pirojpur district was 242.60 ± 41.46 days which is similar to the findings of Faruque *et al.* (1990) who studied that the lactation length of indigenous buffalo was 275 days. Faruque and Amin (1994) mentioned that the lactation length of indigenous buffaloes in the coastal area was 270 days. EI-Kirabi (1995) stated the lactation length of Egypt buffalo was 210 to 280 days.

3.4. Milk yield

The average milk yield of indigenous buffaloes at the studied area was 2.3 ± 0.703 litres per day. In the present study the average daily milk yield was more or less similar to the findings of Hussen (1990) who mentioned that the daily average milk yield of those buffaloes was 2.3 ± 0.63 litres. Das and Patro (1988) observed that the milk yield of Kalahandi buffalo breed of India ranged from 1 kg to 2 kg/day on single milking. However, some animals yielded as high as 4 kg/day.

3.5. Gestation period

The average gestation period of indigenous buffaloes of the studied area was 317.47 ± 6.57 days. Hadi (1965) in his experiment showed that the average gestation period of Marathwada buffalo was 309.60 ± 2.11 days. EI-Sheik and Mohamed (1967) found that the gestation period of Egyptian buffalo was 316.70 ± 0.19 days.

3.6. Birth weight

The average birth weight of indigenous buffaloes of the studied areas was 23.77 ± 5.20 . In the present study, the birth weight of indigenous buffalo calves were more or less similar to the findings of Hussen (1990) who reported that the average birth weight of indigenous buffaloes was 26.74 ± 2.4 kg in Tangail district. Faruque and Amin (1994) mentioned that the average birth weight of indigenous buffaloes of the coastal areas of Bangladesh was 22.00 ± 3.50 kg which was almost similar to the findings of present study, the average birth weight of 18 to 30 kg.

3.7. Age at first calving

The age at first calving of indigenous buffaloes of studied areas was 55.33 ± 7.20 months which is more or less similar to findings of Fadzil (1969) who found that the minimum age at first calving was 3 years, 3 months and 26 days. Shah *et al.* (1987) found that the average age at first calving of rural Nili-Ravi buffaloes in Punjab was 45.84 ± 0.19 months.

3.8. Calving interval

The average of calving interval of indigenous buffalo was 650.93 ± 79.57 days which is more or less similar to the findings of Fadzil (1969) who found that calving interval was 639 days. Khan *et al.* (1990) reported that calving interval of Nili-Ravi buffaloes in Pakistan averaged 552.44 ± 18.4 days.

3.9. Post partum heat period

The average post partum heat period of the studied areas was 235.90 ± 52.28 days. Ei-Sheikh and Mohammad (1967) found that the post partum service interval of 1st, 2nd and 3rd calving for Egyptian buffalo were 192.95, 152.9 and 317.0 days respectively. Rao *et al.* (1973) described that the mean post partum estrus was 146.2 days. Parvez *et al.* (1994) found the post partum estrus interval averaged 171.79 ± 4.01 days.

4. Conclusions

Buffaloes play an important role in meat and milk production especially in Asia. They are also known as 'Asian Animal' plays an important role in farmer's economic life and important component of the mixed farming system in Bangladesh. It is one of the most important sources of market milk in Bangladesh. The present study identified the following problems from the buffalo owners such as- scarcity of feeds and fodders, lack of veterinary care and services, non-availability of hybrid bull, grazing problems, non conception, lack of training and extension, calves mortality of buffalo calves were 10-30 per-cent. Socio-economic aspects of Bangladesh may be changed through improvement of the productive and reproductive performance of indigenous buffalo. From this work it is very difficult to give precise conclusion. It is difficult to come on a clear cut conclusion but data collected in this experiment will be helpful for future research and also give a guideline for buffalo development in Bangladesh.

Conflict of interest

None to declare.

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