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Cattle Feeding and Management Practices at Delduar Upazila in Tangail District of Bangladesh

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ABSTRACT

This study examines the cattle management practices and challenges faced by smallholder cattle farmers at Delduar upazila in Tangail District of Bangladesh during the period from July 2023 to June 2024. The average number of cattle per farm varied, with large-scale farms (>25 cattle) averaging 27 cattle, while small-scale farms (1-5 cattle) averaged 3.40 cattle. Housing space per cattle was inversely proportional to farm size with small farms providing more space per animal. Concrete sheds were predominant (47.5%) and rice straw was the most common roughage feed (100%). Concentrate feeds mainly included rice bran (92.5%). Smart Napier grass was the most cultivated green grass (40%). The study also assessed the amount of feed supplied, with larger farms providing more green grass and concentrate per cattle daily. Average milk production per cow increased with farm size, peaking at 7 liters. Antibiotics and feed additives were less commonly used compared to deworming practices. Common diseases included FMD and LSD, with vaccination practices varying across farm sizes. Training experience was reported by 67.5% of farmers. Key challenges identified were high feed prices and lack of proper knowledge, with farmers suggesting cost reduction and improved veterinary services as primary solutions.

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Introduction

One of the most significant agricultural subsectors that is essential to the growth of the nation's economy is livestock (Sharma et al., 2014). The GDP of the livestock subsector is Tk. 73,571 crore at current market prices, making up 1.85% of the overall GDP and 16.52% of the GDP from agriculture. At constant prices, the GDP growth rate of the livestock subsector is 3.23%. In addition, 20% of workers in this subsector are directly employed, and 50% are employed in part (BBS, 2022-2023). Despite having a negligible GDP share, the animal farming subsector significantly contributes to supplying the daily needs for necessary animal protein (BER, 2019). In rural areas, 80–85% of households own livestock, and the majority of these farmers are small-scale and marginal producers (Hossain et al., 2004). For rural farmers, livestock that is readily available for sale or barter is equivalent to “Cash Income” (Hossen et al., 2008). For Bangladesh's small farmers, raising cattle for milk and meat production has grown to be a significant enterprise. Around 70–80% of the milk produced in the nation is produced by smallholder dairy farmers, who make up over 70% of the industry (Uddin et al., 2012). There are 24.856 million cows in Bangladesh (BBS, 2022-2023). Bangladesh has 1.64% of the world's cattle population, ranking it as the 12th most populous country. Bangladesh produced 140.68 lakh MT of milk and 87.10 lakh MT of meat in 2022–2023 (BBS, 2022-2023). The primary source of milk is the cow. Approximately 60–65% of the meat supplied in the nation is beef, while cows supply 90% of the milk produced there (UNIDO, 2019).

Bangladesh requires 158.50 lakh metric ton milk yearly as per person require 250 ml whole milk per day. We gain 221.89 ml milk per person per day. Therefore, the total deficient of milk is 17.82 lakh MT. Bangladesh is self-sufficient in meat production. We gain 137.38 gm meat per person per day whereas our daily demand is 120.00 gm meat (BBS, 2022-2023). Whereas, the amount of meat consumed in different countries varies enormously with social, economic and political influences, religious beliefs and geographical differences. The top three meat consuming countries are Hong Kong, USA, Australia consuming 136.31, 128.63, 121.53 kg meat per person per year (FAO, 2024). As cattle supply 90% of total milk and 60-65% of total meat produced in Bangladesh (UNIDO, 2019). Therefore, in order to make the current system of milk and beef production more sustainable at the farmer level, it is imperative to ascertain its scope and limitations. One of the biggest barriers to Bangladesh's livestock development's high productivity is the severe lack of high-quality feed and fodder (Tareque and Chowdhury, 2012). Therefore, in order to identify appropriate research and development interventions to improve the health and performance of cattle, it is crucial to understand the available feed resources and coping strategies used by farmers to overcome feed shortage. Thus, the aim of this study was to identify the available feed resources, feeding and management practices and farmers’ coping strategies to overcome challenges under smallholder farming system of Bangladesh.

Materials and methods

Selection of study area

A field survey was conducted to collect data from 40 farmers with a pretested survey questionnaire at Delduar upazila in Tangail District of Bangladesh during the period from July 2023 to June 2024.

Distribution of sample

A sampling unit was referred to any single farm. In this case sampling unit or respondent was a smallholder or commercial cattle farmer. Delduar Upazila of Tangail district was selected for this survey. 40 farmers were chosen from Delduar upazila as sampling unit. Total number of household rearing cattle in the sampled area is 1098690 (BBS, 2019).

Questionnaire for farmer

For this purpose, a structured questionnaire was prepared considering the project objective and pretested first. Then enumerators randomly visited respondents' houses from door to door for direct interviewing with the structured questionnaires. Questionnaires were mostly formed by close-ended questions (answer either 'yes' or 'no' or from multiple answers or multiple-choice questions) which may be described statistically. The number of surveyed households from study area was 40 and all the respondents were involved in cattle farming. During an interview, the research objective was clearly explained to all respondents before starting and their verbal consent was taken. The data on this area was socioeconomic and farming (animal number, their types, management system, production level and feed resources used, challenges faced by farmers and farmers opinion to overcome this challenges) was taken and recorded accordingly. Conversation with the farmer was done in Bangla Language.

Data analysis

All the questionnaires filled by the enumerators were checked and cross-checked by the experts and then all data were imputed in an MS excel worksheet as per output tables. After intensive processing and synthesizing data were analyzed using descriptive statistics with MS Excel.

Results

The results of the survey contain number of cattle per farm, types of shed, available feed resources, amount of feed supplied to cattle and milk production per cow, antibiotics and feed additives used by farmers, vaccination used by farmers, diseases affected most in cattle & challenges faced by the farmers & farmers suggestion to overcome the challenges of selected area.

Number of cattle

Table 1 shows that average number of cattle of large-scale farm (>25) was 27. Average number of cattle of (16-25) farm size was 20 while there was no number of cattle in (11-15) farm size. Average number of cattle of (6-10) and (1-5) farm size was 7.93 and 3.40 respectively.

Table 1. Number of cattle

Farm size	Number of Cattle (average)
1-5	3.40
6-10	7.93
11-15	0
16-25	20
>25	27

Types of shed

Table 2 represents that there were 3 types of shed in study area. These were concrete, semi-concrete and mud. Among them, concrete shed was found 47.50%, semi-concrete shed were found 37.50% and mud floor were found 15% in study area.

Table 2. Types of sheds

Types of shed	Total no of shed	Percentage (%)
Concrete	19	47.5
Semi concrete	15	37.5
Mud	6	15
Total	40	100

Available roughage feed resources

Available roughage feed items in the survey area are shown in Figure 1. It was observed that highest number of farmers (100%) used rice straw & different types of uncultivated grass (87.50%), vegetable waste (55%), smart Napier grass (22.50%), sugarcane top (50%), tree leaves (37.50%), maize leaves (20%), urea molasses straw (12.50%), fruits peel (25%), water hyacinth (17.50%) and banana stem (15%).

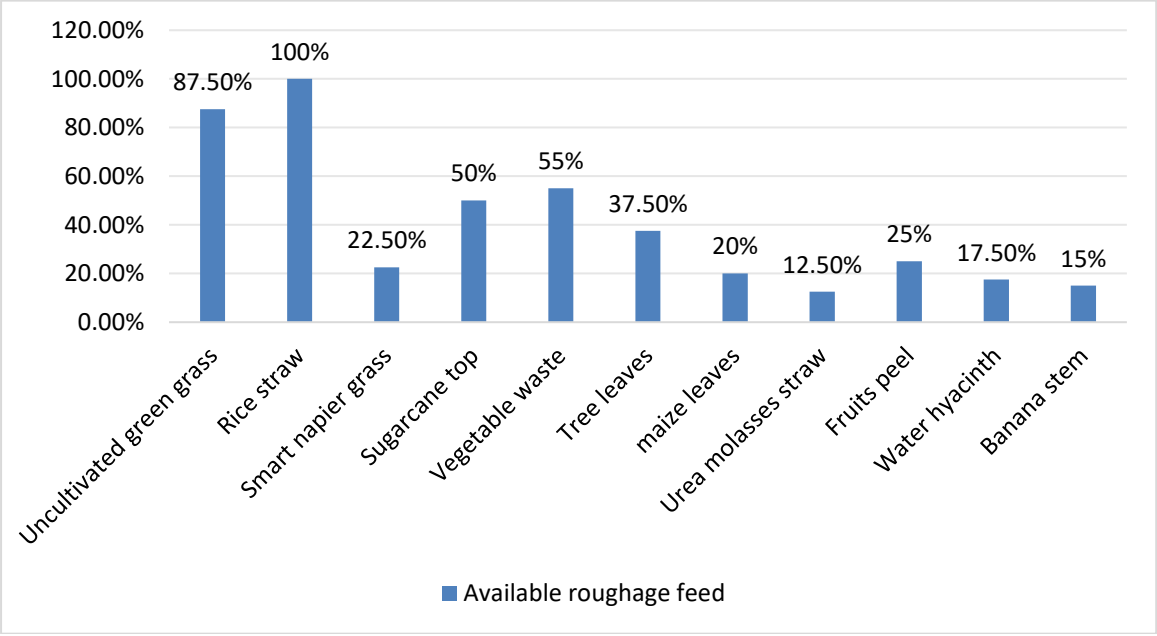

Figure 1. Available roughage feed resources

Available concentrate feed resources

Available concentrate feed items in the survey area are shown in Figure 2. It was observed that highest number of farmers used rice bran (92.50%) followed by wheat bran (75%), Kheshari bran (35%), soybean bran (22.50%), broken rice (52.50%), broken maize (32.50%), mustard oil cake (55%) and molasses (12.50%).

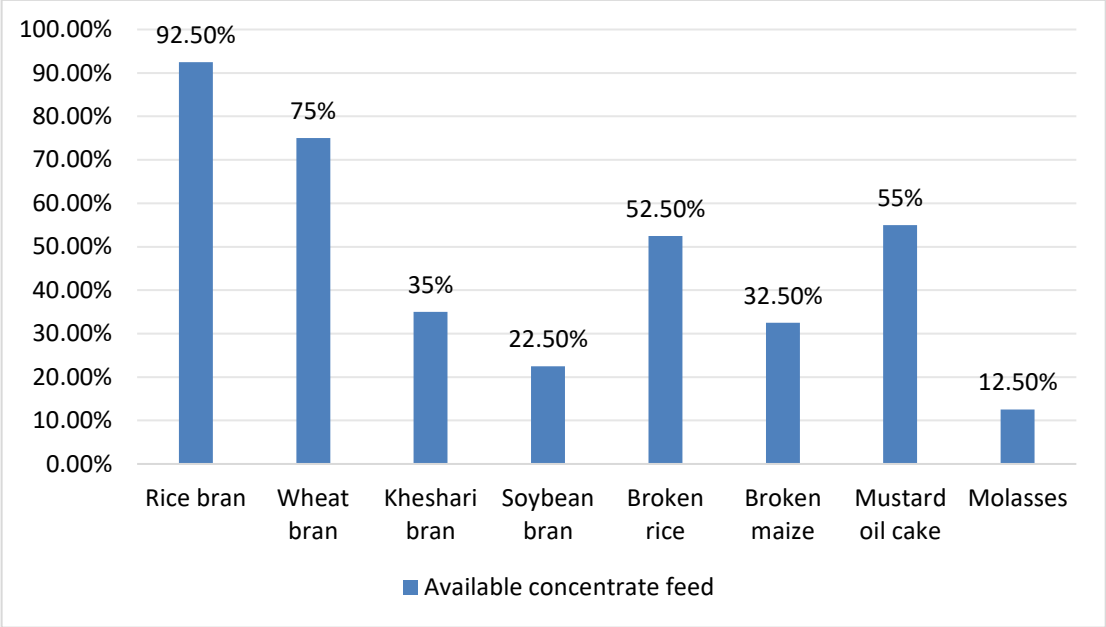

Figure 2. Available concentrate feed resources

Amount of feed supplied to cattle and milk production of dairy cow

Table 3 shows that farms with (16-25) cattle show a significant increase in both the amount of feed supplied and milk production compared to smaller farms. These farms supply 18.33 kg of green grass and 3.33 kg of concentrate feed per cattle per day, resulting in 7.33 liters of milk per cow.

Table 3. Amount of green grass and concentrate supplied to cattle per day

Farm size	Green grass (kg/cattle/day)	Concentrate feed (kg/cattle/day)	Milk production (liter/cow)
1-5	8.40	1.75	3.14
6-10	9.8	2.13	4.4
11-15	-	-	-
16-25	18.33	3.33	7.33
>25	20	2.5	7

Antibiotics, feed additives and deworming used in the study area

Table 4 shows that most farmers didn't use antibiotics (47.50%) and feed additives (40%) whereas practiced deworming (82.50%) in study area.

Table 4. Antibiotics, feed additives and deworming used in the study area

Response	Antibiotics	Feed additives	Deworming
Yes (%)	47.5	40	82.5
No (%)	52.5	60	17.5

Diseases which affected most in the study area

Table 5 demonstrates that FMD (40%) and LSD (33.33%) affected most in (6-10) scale farm (40%) whereas in (1-5) scale farm, FMD and LSD affected only 14.28% and 28.57%. BEF affected 33.33% and 9.52% in (16-25) scale farm and (1-5) scale farm. Bloat affected 100% in (>25) scale farm which is higher than (1-5) scale farm (19.05%) and (6-10) scale farm (13.33%). Calf pneumonia affected most 33.33% in (16-25) scale farm.

Table 5. Types of diseases affected in study area

Type of Diseases	1-5	6-10	16-25	>25
FMD	14.28%	40%	-	-
LSD	28.57%	33.33%	33.33%	-
BEF	9.52%	-	33.33%	-
Bloat	19.05%	13.33%	-	100%
Calf Pneumonia	28.57%	13.33%	33.33%	-

Vaccination

Table 6 demonstrates that in small scale farm (1-5), farmers use FMD (68.75%), anthrax (12.5%), LSD (12.5%) and black quarter (6.25%) vaccine. In (6-10) scale farm, farmers use FMD (40%), anthrax (40%), LSD (15%) and black quarter (5%) vaccine whereas in (16-25) scale farm, farmers use FMD (30%), anthrax (30%), LSD (20%) and black quarter (20%) vaccine. In (>25) scale farm, farmers use 50% FMD and 50% anthrax vaccine.

Table 6. Vaccination used in the study area

Name of vaccine	1-5	6-10	16-25	>25
FMD Vaccine	68.75	40	30	50
Anthrax Vaccine	12.5	40	30	50
Lumpy skin disease Vaccine	12.5	15	20	
Black quarter Vaccine	6.25	5	20	

Challenges and suggestions regarding cattle farming

Challenges regarding cattle farming are shown in figure 3. Most farmers claimed that higher price of feed was the key challenges for cattle farming. 72.5% farmers claimed higher prices of feed as main problem followed by lack of proper knowledge, thieves' problem, lack of land, lack of breed, lack of vaccine, lack of capital and lack of veterinary doctor that were claimed by 27.5%, 22.5%, 15%,15%, 12.5%, 10% and 10% respectively. Farmers opinion for overcoming the challenges regarding cattle farming are shown in table 7. 70% farmers suggested that reducing feed cost was the primary solution to overcome challenges regarding cattle farming. 22.5% farmers suggested that increasing more security in farm and to create marketing channel for fair price in selling milk might be the solution of thieves' problem. 15% farmers said that more veterinary doctor should be appointed in upazila veterinary hospital. 12.5% farmers wanted high yielding breed to get more milk production. 10% farmers claimed that they wanted enough vaccine from upazila veterinary hospital.

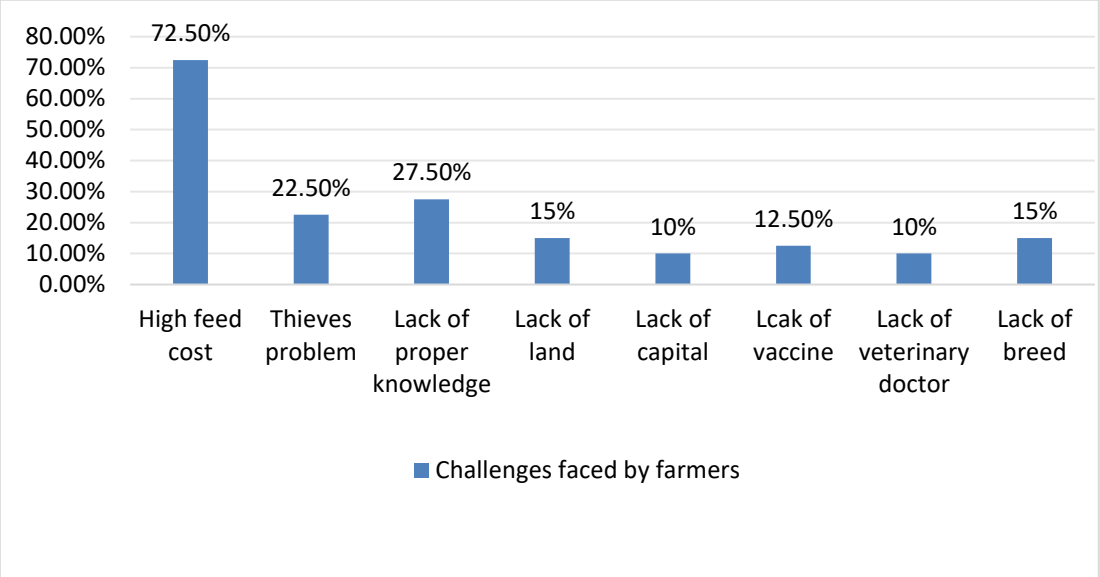

Figure 3. Challenges regarding cattle farming in study area

Table 7. Farmers opinion for overcoming the challenges regarding cattle farming in study area

Solutions	Percentage
Reducing feed price	70%
Need government help	30%
Solve thieves' problem	22.5%
Ensure enough veterinary doctor	15%
Ensure high yielding breed	12.5%
Ensure vaccine	10%

Discussion

In present study, large farm (>25) average number of cattle was higher because some large farm reared more cattle. That's why large farm average number of cattle was higher than others farm. Zaedi et al. (2009) classified different dairy farmers in Milk Vita region and found average 3.9 (small scale), 8.4 (medium scale) and 19.9 (large scale) crossbreed cows in each farm and these findings similar with the present study where small-scale farm average 3.5, medium scale farm average 7.93 and large-scale farm average (20-27) per cow. Amin et al. (2020) reported that most of the houses were found shabby (47.89%), full tin (31.01%), kacha (14.94%) and semi pakka (6.17%) which were more or less similar to the current study.

It was observed that highest number of farmers (100%) used rice straw and rice bran (92.50%) in the present study. These findings can relate with Talukder et al. (2019) who reported that in Pabna, the majority of farmers (82%) utilized rice straw as a roughage source for their cattle, compared to 76% who used Jamboo and 44% who used Napier grass. In contrary, Shahjahan et al. (2017) reported that 60% farmers of Pabna and Shirajganj used ad libitum fodder whereas 40% farmers used ad libitum straw. Sarker et al. (2016) reported that rice polish was the most available concentrate feed ingredient fed by about 84% farmers followed by wheat bran (52.3%), mustard oil cake (25.2%) and broken rice (16.7%). In contrary, Talukder et al. (2019) reported that for concentrate source 54% farmer of Pabna districts used maize crush, 46% used wheat bran, 26% used til oil cake, 24% used til bran and 44% farmers used mixed feed for cattle feeding. Sultana et al. (2024) reported that a farmer in Munshiganj supplied the highest amount of green grass to cows (18.36±3.36 kg/day/head) and the lowest (10.80±2.25 kg/day/head) by farmers in Jashore which was similar to the current study. Concentrate was supplied the highest amount of (6.00±1.00) kg per cow per day by the farmers in Jhikorgacha and the lowest (2.60±1.28 kg/day/head) by the farmers in Patiya which were more or less similar to the current study. Hossain et al. (2004) reported that the average milk production per cow per day was 5.2 liters in small scale farm. Kamal et al. (2019) reported that among the respondents 58.8% farmers practiced using steroid as a growth promoter and rest of them did not practice any kinds of growth promoter at the period of fattening. Jahan, (2020) who reported that all farmers used anthelmintic to deworm animal regularly which is similar to this study.

In this present study, FMD and LSD affected most in small scale farm whereas bloating affected most in large scale farm. Kabir et al. (2023) found that foot and mouth disease (FMD) was the predominant disease in livestock except for livestock in Sirajganj. More than 45% of the cattle of Dhaka and 40% of the cattle of Rajshahi were affected by this highly contagious cattle disease. BVD (33.3%) and bloating (33.3%) were the most common diseases in cattle in Sirajganj. Jahan, (2020) who reported that most of the farmers of savar upazila used vaccine to prevent disease whereas most farmers use FMD vaccine in the present study area. (Datta et al., 2019; Rahman et al., 2012; Ahmed et al., 2010) where they reported that 61%, 93.3% and 95% farmers respectively claimed higher prices of feed was the main problems and 85% farmers said that lowering feed cost was the main solution which is similar to the present study.

Conclusion

From the study it might be concluded that most of the farmers completed primary school education. The average number of cattle in large scale farm (>25) and small-scale farm (1-5) in smallholder farming system in selected area were 27 and 3.40 respectively. Small scale farmers provided more housing space to cattle in compare to large scale farmers. Most farmers used concrete shed. Farmers used roughage feed items such as rice straw (100%) followed by uncultivated green grass, vegetable waste, smart Napier grass, tree leaves, sugarcane top, fruits peel, maize leaves, urea molasses straw, water hyacinth and banana stem round the year based on their availability. They also fed their cattle various type of concentrate feed such as rice bran (92.50%) followed by wheat bran, broken rice, broken maize, mustard oil cake, kheshari bran, soybean bran and molasses round the year based on their availability. Average (8.40-20) kg green grass and (1.75-3.33) kg concentrate was supplied to cattle per day. Average milk production was 3.14 to 7.33 liter per cow. Most farmers didn't use antibiotics (52.50%) and feed additives (60%) in cattle feeding. Farmers of this study mostly used FMD vaccine (68.75%) and anthrax vaccine (40%) in small scale farm. They had proper knowledge about deworming. In large scale farm, bloat was the main problem where as in small scale farm, FMD and LSD were the main problem. Highest number of farmers (72.50%) claimed higher price of feed as key challenge followed by lack of proper knowledge about cattle farming, thieves' problem, lack of land for cultivation, lack of breed, lack of vaccine, lack of capital and lack of veterinary doctor. Farmers identified reducing feed cost as core solution to overcome challenges followed by need government help, solving thieves' problem, ensuring enough veterinary doctor, supplying high yielding breed and providing enough vaccine.

Conflict of interest statement

The authors declare that there is no conflict of interest that could be perceived as prejudicing the impartiality of the research reported.

References

1. Ahmed T, MA Hashem, M Khan, MF Rahman and MM Hossain, 2010: Factors related to small scale cattle fattening in rural areas of Bangladesh. Bangladesh Journal of Animal Science, 39: 116-124.
2. Amin MR, MA Kabir, SMJ Hossain, GK Deb, SM Amanullah and F Afroz, 2020: Study on existing husbandry management practices of cattle rearing in selected areas of Bangladesh. International Journal of Agricultural Economics, 5(6): 279-285.
3. BBS, 2019: Agriculture Census (6th), Bangladesh Bureau of Statistics, Statistics and Informatics Division, Ministry of Planning, Government of the People's Republic of Bangladesh, Dhaka. 23- 26.
4. BBS, 2022-23: Livestock economy at a glance 2022-2023. P denotes Provisional; Prepared by Dr. Hossan Md. Salim, Planning Section, Department of Livestock Services (DLS).
5. BER, 2019: Bangladesh Economic Review; Economic Adviser's Wing, Finance Division, Ministry of Finance, The Government of peoples Republic of Bangladesh.
6. Datta AK, MZ Haider and SK Ghosh, 2019: Economic analysis of dairy farming in Bangladesh. Tropical Animal Health Production, 51(1): 55-64.

7. FAO, 2024: World Livestock 2027 - Livestock in food security. Food and Agriculture Organization of the United Nations (FAO). Berlin.
8. Hossain ZMA, SMJ Hossain, MM Rashid, N Sultana and MH Ali, 2004: Study on the present management condition of private dairy farm at Rangpur Sadar Thana in Bangladesh. Journal of Biological Science, 4(2): 185-188.
9. Hossen MJ, MS Hossain, MJ Abedin, MR Karim and FI Rume, 2008: Animal production strategies in southern region of Bangladesh. The Agriculturists, 6(1&2): 77-83.
10. Jahan S, 2020: A Production report on The Management Practice of Small-Scale Dairy Farm. Journal of Chattogram Veterinary and Animal Sciences University.
11. Kabir MA, SMJ Hossain, AA Noman, D Das, SF Shejuty and MR Amin, 2023: Cattle Disease Prevalence and Knowledge of Farmers regarding Health Management and Livestock Technology in Bangladesh. Journal of Bangladesh Agricultural University, 21(3): 308-317.
12. Kamal MT, MA Hashem, M Al-Mamun, MM Hossain and MA Razzaque, 2019: Study of cattle fattening system in selected region of Bangladesh. SAARC Journal of Agriculture, 17: 105-118.
13. Rahman Z, MM Hossain, MA Hashem, MAK Azad and H Khatun, 2012: Factors related to small scale beef fattening programs in Dinajpur district of Bangladesh. Progressive Agriculture, 23(1&2): 33-38.
14. Shahjahan M, 2017: High yielding dairy cattle husbandry and their production performance at Baghabari Milk Vita areas of Bangladesh. Asian Australan Journal of Bioscience and Biotechnology, 2(1): 60-67.
15. Sharma PK, SK Raha and H Jorgensen, 2014: An economic analysis of beef cattle fattening in selected areas of Pabna and Sirajgonj district. Journal of Bangladesh Agricultural University, 12(1): 127-134.
16. Sultana N, JS Khanam, T Islam, MK Alam and S Hasan, 2024: Present feeding management practices and socio-economic conditions of dairy farmers in selected areas of Bangladesh. African Journal of Agricultural Research, 20(1): 11-17.
17. Talukder MAI, MM Billah, MAH Miah, SM Rahman, MY Ali, S Munira and M Shahjahan, 2019: Available dairy cattle feed resources with their nutrient composition existed on milk pocket area of Bangladesh. International Journal of Natural and Social Sciences, 6: 44-47.
18. Tareque AMM and SMZH Chowdhury, 2012: Agricultural research priority: Vision-2030 and beyond sub-sector: Livestock. Agricultural Research council, Dhaka, Bangladesh.
19. Uddin MM, MN Sultana, B Bruermer and KJ Peters, 2012: Assessing the Impact of Dairy Policies on Farm-Level Profits in Dairy Farms in Bangladesh: Benchmarking for Rural Livelihoods Improvement Policy. Journal of Reviews on Global Economics, 1: 124–138.
20. UNIDO, 2019: The dairy and beef value chain in Bangladesh. The united nation industrial development organization, Vienna, Austria.
21. Zaedi M, Demurak, Y Yamamoto, K Masuda, Sawauchid and T Nakatani, 2009: Bangladeshi dairy farmers' conditions under Milk Vita. Review of Agricultural. Economics, Hokkaido University, 64: 181-190.