Abstract

The welfare of dairy cows is a major concern of the public in developed countries. The present study was assigned to assess the welfare of dairy cows. This study was undertaken in 40 small scale dairy farms at Daulatpur Upazila of Kushtia district of Bangladesh. Welfare indicators selected were mainly those of health and economic importance, such as lameness, lesions on the body and limbs, cleanliness levels, milk yield, and body condition. This study included physical examination of 350 cattle and use of a structured questionnaire to collect data on health and management practices and farmer's perspectives about animal welfare. Hygiene management was often poor, with soiling of body parts with faeces. The prevalence of lameness, at 7.1%, was less than has commonly been observed in larger, more intensive dairy farms, but body injuries were commonly detected at the carpal and hock joints which was 56% and 50% of cattle population respectively. This suggests that floors and/or bedding to lie on were inadequate. Many farmers did not follow routine vaccination and deworming schedules. The routine vaccination and deworming schedule were 10% and 72.5% of the cattle population respectively and farmers were not generally aware of the concept of animal welfare. Average milk yield was 9 L/d (Range 4–15) and body condition assessment indicated that cows were thin on average. The study demonstrates some similar welfare issues to those that have been commonly identified in large, intensive units, but also some differences, in particular a failure to provide good floors, bedding, and basic health care.

Keywords: Body condition score; Average milk yield; welfare assessment; dairy cow; Bangladesh

Chapter I

Introduction

The welfare of dairy cows is a major concern of the public in developed countries, where consumers are increasingly oriented toward buying products from animals whose welfare is not compromised, and where it is guaranteed that products are in line with the standards of good agricultural practice. Even though farmers are concerned about the condition of their animals, to meet growing public demand for high welfare, they must adapt their management practices in order to improve and optimize the welfare of their herd. Previously, animal welfare was understood to relate just to major concerns, such as serious hunger, thirst, injuries, or illness. For many years, welfare considerations have included discomfort, distress, fear, pain, and absence of normal behaviour. It is now expanded to a multidimensional concept that includes physical and mental health, the absence of hunger, and provision for a manifestation of the typical behaviour for that species.

Four fundamental principles on which to base an integrated welfare assessment are good feeding, housing, health status and behaviour. Inadequate housing and feeding expose cattle to numerous stressors and unpleasant emotions, which correspondingly affect their immunity, disease status, and behavioural disorders. On farm assessment of animal welfare can also be based on an evaluation of the provision of resources and management, direct observation of the animals and examination of farm records. Associations have been reported between BCS, body weight change and fertility, health, and milk production, but these are not well understood for the zero grazing systems predominating in developing countries. In relation to health, common welfare indicators are mortality, injury, productivity, and physiological and behavioural disturbances. Risk factors for the main health disorders (mastitis, lameness, and metabolic disorders) afflicting dairy cows have been evaluated. Cows are commonly exposed to mud and faeces, but they avoid contaminated areas if they can. There is an association between dirtiness of cows and their susceptibility to gastrointestinal problems, mastitis, and digital dermatitis. The dirtiness of cows, especially of the hind limbs and udders, is also affected by stall design

and length of chains, barn design, bedding, scrapping frequency, stocking density, and lying times. Coat contamination with faeces and urine can lead to irritation of the skin and discomfort to the animal. Acute welfare change can be indicated by a decrease in productivity, in particular milk yield, but may also be evidenced by development of illness or injury, and changes in behaviour, for animals that are lethargic, unwilling to move, or unusually aggressive. Animal welfare can, therefore, be inferred by several methods: behavioural, physiological, psychopathological assessments, longevity, and productive performances (Winckler *et al*.,2015). The Welfare Quality protocol, developed in the European Union, is one of the best-known protocols for welfare assessment. It aims to evaluate the feeding, health, housing and behaviour of the cattle, recognizing that the most important parameters include hunger, thirst, resting, thermal comfort, ease of movement, absence of pain, injury and disease, ability to express social and other behaviours, a good human–animal relationship, and a positive emotional state. It bases the assessment of dairy cow welfare on comfort, disease, production, and cleanliness parameters.Cleanliness, integument alterations, lameness, and milk yield recur as important factors contributing to the welfare of the cattle or indicating their general condition across systems. Small-holder dairy farms are the backbone of the rural economy in many developing countries, supporting the livelihoods of many farmers of low socioeconomic status. They play a significant role in poverty alleviation and reduction of malnutrition. The dairy cattle in these farms are a regular source of income, provide employment and cater to the protein needs of the rural population. Small holder dairy farming suffers from constraints—such as diseases, deficient management, and inadequate feeding practices—that compromise the welfare of cattle reared in such systems. Associations between welfare parameters were determined to aid in deciding which of the European Welfare Quality® protocol measures were most suitable to assess welfare in such situations. In our country, the welfare of the farm animals is a major concern. To best of my knowledge very limited work has been conducted in our country regarding the animal welfare. Considering the above facts, the present study was conducted to observe the current status of animal welfare in the dairy farms of Daulatpur Upazila, Kushtia, Bangladesh.

Objectives of this study:

- To observe animal's freedom from hunger and distress.
- To observe good health and well-being as well as monitoring for any signs of pain, injury and sufferings.

Chapter II

Materials and Method

2.1 Study Location and Population:

The study was carried out for the periods of 5 months from 1st March, 2021 to 30th July, 2021 when the mean maximum and minimum temperatures in this region were 41° C and 27° C respectively and mean annual rainfall was 1610 mm. The samples were collected from fourty (N=40) randomly selected dairy farms at Daulatpur upazila under Kushtia district of Bangladesh. About three hundred and fifty cattle (n=350) were sampled during the study period.

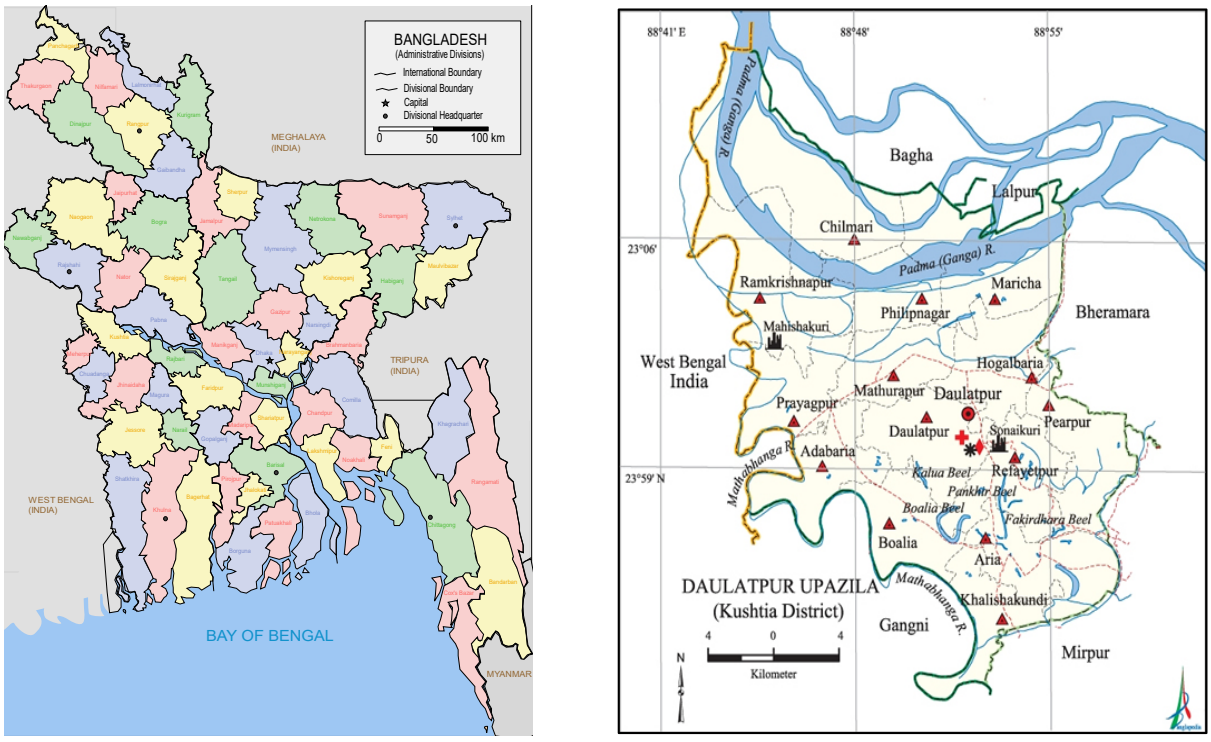


Figure 2.1: Geographical location of data collection site. (a) Map of Bangladesh; (b) Map of Daulatpur Upazila.

2.2 Data Collection and Processing:

Farm level data were recorded using a structured questionnaire through face-to-face interview and by observation. The face-to-face interviews with the farmers used a questionnaire with multiple-choice and semi-closed questions to collect animal and management linked data related to welfare. Information about feeding (type and schedule), milk yield of the cows, frequency of milking, technique of milking (hand or machine), whether teats were washed with water before and after milking (yes, occasionally, or no), whether application of antiseptic on teats before and after milking was done (yes or no), frequency of removal of the faeces from the house, incidence of mastitis and dystocia, and the vaccination and deworming schedule was collected in the farmer's questionnaire (Table 1.1). Milk yield data was collected from the farmers and cross-checked with the data available in the records. The type of flooring and floor cleanliness was assessed by visual inspection. Assessment of management parameters from records and conducting the questionnaire-based farmer survey was done by only one observer.

Figure 2.2: Visiting Farm and Data Collection

Table 1.1: Parameters measurement and methodology of data collection for the assessment of milk yield and health of the selected dairy cows based on management parameters used in the Welfare Quality® assessment protocol (Welfare Quality®, 2009)

Parameters	Measurement type	Description/ Measures
Milk yield	Questionnaire and farm records	Average milk yield (l) / cow / day
House management	House-based measures; Questionnaire and direct observation	Flooring type (1: soil / 2: brick / 3: combined of soil and brick); frequency of faeces removal from the house (<1x/d, 1x/d or 2x/d) and floor cleanliness (1: clean, 2: mildly dirty, 3: moderately dirty, 4: very dirty)
Mastitis incidence	Questionnaire	Number of cows having suffered with an udder infection (clinical mastitis) during the last 12 months
Dystocia incidence	Questionnaire	Number of calvings where major assistance was required during the last 12 months.
Vaccination schedule	Questionnaire	Use of vaccines against important diseases (FMD, anthrax, black quarter); classified as never used, occasionally used, routinely used
Deworming schedule	Questionnaire	Use of anthelmintics; classified as 1, 2, or 3 times/year

A total of 350 cattle were examined at the 40 farms, of which 79.26% were lactating cow and 20.74% were dry cow. The farm with largest size was 25 and smallest size was 4. The average number of cattle in farm was 8.75. The cow-based observations and clinical examinations (Table 1.2) were conducted on manually restrained cows in each farm by the second assessor, who was trained in the assessment protocol through initial pilot studies in two farms before the commencement of the actual study. The cows were identified by the farmer by name and subjected to inspection, which was from the side (left or right, randomly chosen) and from behind.

Table 1.2: Parameters measurement and methodology of data collection for the assessment of health of the selected dairy cows based on animal parameters used in the Welfare Quality® assessment protocol (Welfare Quality®, 2009).

Parameters	Description / Measures
Clinical examination	General appearance (alert/dull/depressed); mucous membrane of eye conjunctiva (moist and pink/moist and pale pink/dry and white); teat condition (normal/deformed/cracked/dry), rumen condition (distended, hollow or normal).

Body condition score	Visual appraisal by the assessor of individual BCS using a four-point scale, scored to whole units: 1: Very thin (cavitation of tail head, depression at the tuber coxae region, transverse vertebral processes ends clearly visible, tail head, tuber coxae, spine and ribs visible) 2: Thin (slight cavitation of tail head, flatness in the tuber coxae region, transverse vertebral processes ends clearly visible, spine and ribs visible but tail head not clearly visible); 3: Fat (no cavitation around tail head but no folds of fatty tissue present, flatness in the tuber coxae region, ends of transverse vertebral processes slightly visible, ribs not visible); 4: Very fat/ obese (no cavitation around tail head with presence of fatty tissue folds, convexity between the spine and tuber coxae, transverse vertebral processes not visible, extensive areas of fat under the skin).
Cleanliness	The hindquarter, lower hind leg (hock), flank, udder Define, and teats were inspected to assess cleanliness. Cows were classified as clean if there was no or only minor contamination (<15 cm^2) with either soil or manure, otherwise they were classified as dirty.
Lameness	The cows were assessed from behind and from the side when walking on a surface on which they normally walked. A three-point scoring system was used (Breuer *et al*., 2000) 0: Not lame, timing of steps and weight-bearing equal on all 4 feet; 1: Lame, imperfect temporal rhythm in stride, creating a limp; and 2: Severely lame, strong reluctance to bear weight on one limb, or more than one limb affected.
Skin lesion	Six body regions of cows (neck, brisket, carpal and tarsal joint, flank and tuber coxae) were evaluated from one side (randomly chosen). In each region, the number of cows with hairless patches and lesions/swellings of >15 cm^2 were recorded.
Nasal discharge	Scale: 0: Little or no evidence of discharge 1: Evidence of clearly visible flow/discharge from the nostrils; transparent to yellow/green and often of thick consistency
Ocular discharge	Scale: 0: Little or no evidence of discharge, or 1: Evidence of clearly visible flow/discharge (wet or dry) from the eye, at least 3 cm long
Vulval discharge	Scale: 0: Little or no evidence of discharge 1: Evidence of purulent effluent from the vulva, including on the underside of the tail
Laboured respiration	Scale: 0: No evidence of abnormal respiration 1: Evidence of deep and laboured respiration; expiration usually accompanied by pronounced sound
Diarrhoea	Scale: 0: Little or no evidence of abnormal consistency of faeces 1: Evidence of loose watery faeces around the tail
Ectoparasitic infestation	Close inspection, including with a hair comb to find any mites or ticks

2.3 Farmer's and Stock People's Attitudes on Animal Welfare:

The farmers' understanding of animal welfare, as defined by the five freedoms of animal welfare and their assessment indicators, was evaluated by interviewing them. The following closed questions were asked (yes or no): whether the farmer had heard of animal welfare (translated into the native language), and whether they thought the following were important for animal welfare: access to feed and water at all times; minimisation of pain, distress, and suffering; veterinary treatment; and comfortable housing.

2.4 Statistical Analysis:

the data was input in Microsoft Excel 2019 spreadsheet. Analysis was conducted using the statistical package STATA (STATA® version 16.0, STATA Corp LLC, College Station, Texas 77845, USA). The number of cows assessed as dirty or with lesions in the different body parts was assessed by a Chi-square goodness of fit test. Ordinal logistic regression was used to relate floor cleanliness (1: clean to 4: very dirty), faeces removal (1 or 2 times per day or once every 2 days), and type of floor (soil, brick, or mixed soil and brick) to health-related parameters scored on an ordinal scale with a logit link function.

Chapter III

Result

3.1 Breeds of the Dairy Farms:

The cattle were Local Zebu cattle (n=57), Holstein-Friesian & Zebu cattle cross (n=272) and Sahiwal & Zebu cattle cross (n=21). These breeds are the most common in this region (Figure 3.1).

Holstein-Friesian Cross Cow Shahiwal Cross Cow Local Cattle

Figure 3.1: Breeds of Dairy Farms

3.2 Milk Production and BCS:

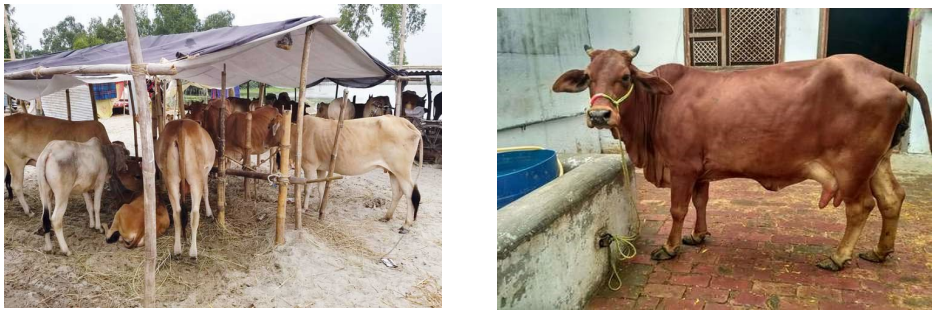
The mean milk yield, averaged across farms, was 9 L/d ±0.12 (Range 4–15) and mean BCS was 2.07 ±0.016 (Range 1.4–2.5). The distribution of mean adjusted milk yield/cow/d for all farms was normal. BCS, which necessarily had a discontinuous distribution, approximated a normal distribution ($p = 0.03$). All herds were hand-milked twice a day in the cow's stalls. Teats were sometimes cleaned before milking with water at body temperature, and occasional application of an antiseptic. No antiseptic treatment was used after milking.

3.3 Housing Facilities:

All farms had a shelter for their cows with a corrugated iron roof and stalls. 25% (n=10) farms had rubber bedding material for cows remaining 75% (n=30) did not have any bedding material. Few farms 12.5% (n=5) had a small loafing area. A total of 30% (n=12) of farms had earthen floors in alleys between rows of stalls, 37.5% (n=15) had brick floors and 32.5% (n=13) had floors made with concrete (Figure 4.2). Only 7.5%% (n=3) of the farms had maternity stalls into which pregnant cows were transferred in the last few days prior to parturition. In the

remaining 92.5% (n=37) of the farms, cows calved in their loafing area and in the alleys (Figure 3.2).

Face-In Housing System | Face-Out Housing System | Concrete Floor



Earthen Floor | Brick Floor

Figure 3.2: Different Housing Facilities

3.4 Cleanliness of Animals and House:

Removal of faeces and cleaning of the stall floors on most of the farms was done once per day which was 57.5% (n=23); 25% (n=10) did this twice/day and for 17.5% (n=7) it was done either occasionally or once every two days. The percentage of cows classified as dirty was higher in the regions of their hind quarter, lower hind limbs, flanks and udder was 71.7% (n=251), 69.1% (n=242), 72.6% (n=254), 67.4% (n=236), respectively than for their teats 37.7% (n=132) [$\chi^2 = 137.2$, $p < 0.001$]. Floor cleanliness showed a significant ($p < 0.05$) or close to significant ($p < 0.10$) relationship with lameness, hind limb cleanliness, udder cleanliness, body hair loss, respiratory problems, and mastitis (Table 3). In addition, the frequency of faeces removal demonstrated significant ($p < 0.05$) or close to significant ($p < 0.10$), negative relationship with hind limb cleanliness, neck lesions and deworming, and positive relationship with hair loss and mastitis. Furthermore, the type of flooring had significant ($p < 0.05$) or close to significant ($p < 0.10$) positive relationship with diarrhoea and mastitis, and negative relationships with flank cleanliness, hock lesions, ocular discharge, and

deworming (Table 3). Lesions on various parts of the body of 350 cattle were examined and evaluated (Table 4).

Clean Floor

Dirty Floor

Clean Body

Unclean Body

Figure 3.3: Cleanliness of Floor and Animal Body

Table 3.1: Significant (P < 0.05) or close to significant (P > 0.05 < 0.10) health variables of cows related to floor cleanliness (1: clean to 4: very dirty), frequency of faeces removal and type of floor by ordinal logistic regression.

Predictor	Coefficient	SE Coefficient	p -Value	Odds Ratio	95% CI
Floor cleanliness (1: clean to 4: very dirty)					
Lameness	−0.102	0.057	0.069	0.91	0.82–1.02
Hind limb cleanliness	0.040	0.024	0.043	1.05	1.1–1.08
Udder	0.062	0.023	0.021	1.06	1.02–1.14
Hair loss	−0.163	0.062	0.013	0.83	0.77–0.98
Respiratory problem	0.310	0.183	0.082	1.35	0.99–1.99
Mastitis	0.126	0.065	0.034	1.16	1.11–1.29
Frequency of faeces removal (1: <1x/d, 2: 1x/d, 3: 2x/d)					
Hind limb cleanliness	−0.045	0.025	0.063	0.93	0.93–1.01
Neck lesion	−0.255	0.085	0.005	0.78	0.65–0.94

Hair loss	0.104	0.042	0.082	1.13	0.99–1.27
Deworming	−1.234	0.657	0.072	0.24	0.08–1.12
Mastitis	0.158	0.066	0.014	1.28	1.12–1.34
Floor type (1: earth floor, 2: brick floor)					
Flank cleanliness	−0.043	0.021	0.074	0.42	0.99–1.22
Hock lesion	−0.136	0.042	0.036	0.75	0.76–0.99
Ocular discharge	−0.524	0.156	0.024	0.65	0.43–0.85
Diarrhoea	0.214	0.110	0.024	1.12	1.22–1.53
Deworming	−2.176	1.062	0.030	0.23	0.21–0.93
Vaccination	2.607	1.454	0.061	11.41	0.85–210.652
Mastitis	0.324	0.120	0.021	1.25	1.31–1.78

Table 3.2: Prevalence of lesions on various parts of the body of 350 cattle examined in 40 dairy units evaluated for welfare of dairy cattle at Daulatpur Upazila of Kushtia District of Bangladesh.

Body Regions With Injury	Farms		Cows	
	Number of Farms (n=40)	Percentage (%)	Number of Cows (n=350)	Percentage (%)
Carpal joint	19	47.5	31	8.86
Tarsal joint	18	45	34	9.71
Neck	11	27.5	13	3.71
Brisket	12	30	12	3.43
Flank	15	37.5	25	7.14
Tuber coxae	17	42.5	35	10

3.5 Health Management and Status:

Most farmers did not routinely vaccinate their stock. Regular vaccination was done 10% (n=4); occasional vaccination 15% (n=6); no vaccination 75% (n=30) of catle. More farmers used anthelmintics, but only 72.5% (n=29) used them regularly, 20% (n=8) occasionally and 7.5%

(n=3) never used them. The most common diseases recorded were ectoparasitism, diarrhoea and mastitis. Nasal discharge was the most common of all the discharge sites examined (Figure 3.4).

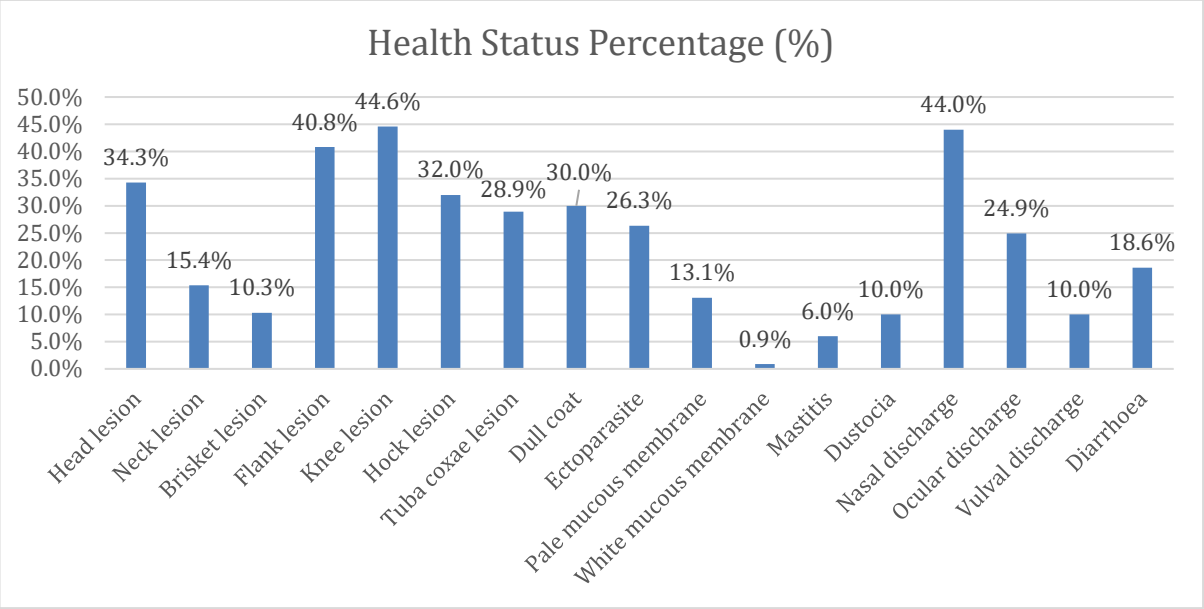


Figure 3.4: Graphical representation of different health status percentage of total (n=350) cattle of dairy farms at Daulatpur Upazila of Kushtia District of Bangladesh

Hoof Lesion

Arthritis

LSD Affected Cow

Diarrhoea

Skin Lesion

Vulval Discharge

Figure 3.5: Different Health Conditions

3.6 Farmer's Perspectives on Animal Welfare:

None of the farmers had heard of the term 'Animal Welfare'. However, farmers in 95% (n=38) and 72.5% (n=29) of the dairy farms, respectively, agreed that cows should have ready access to feed and water. In 92.5% (n =37) of the farms observed, farmers supported the requirement for alleviating unnecessary pain and suffering of the cattle, as well 67.5% (n=27) of the farmers supported the provision of immediate veterinary assistance when required. However, in only 60% (n=24) of the farms, farmers agreed that sufficient housing space with adequate facilities should be provided to allow the expression of normal behaviour patterns in the cows. In addition to the information on the daily milk yield of the cows, the farmers reported that the p of mastitis and dystocia were 7.7% and 12.9%, respectively.

Chapter IV

Discussion

In my study the mean daily milk yield per lactating cow on farms was low at just 9 L/d. Although there is an acknowledged influence of lactation stage and parity in daily milk, these factors were not included in our data set because farmers did not have this information. This yield is higher than the previous reports from Bangladesh of 7.8 L/d/cow (Apurba *et al*.,2020).

In this study I found that the average milk yield had a curvilinear relationship with BCS. Milk yield of cows is also dependent on a combination of factors, including stage of lactation, breed, parity, and mastitis status. Previous studies have shown that cows in poor condition have reduced milk yield, in a linear relationship, and also poor reproductive performance (Gergovska *et al*.,2001).

In this study I found that few farms had a separate room for calving, even though parturition in alleys or loafing areas increases the risk of reproductive tract infections and calf disease, in particular, navel ill. Cows lay on floors with no bedding, on wet or moist brick floors with an uneven and abrasive surface and would therefore be expected to have an increased risk of lameness and limb injuries (S van Gastelen *et al*.,2012). Furthermore, an earthen floor with pooled urine will lead to cows having dirty coats.

In my study I found removal of faeces and cleaning of the stall floors were done only once or twice per day and on some farms less than once per day. The hindquarter, flank, tail, and udder are most likely to become dirty from manure and loose/diarrhoeic faeces. Similar to other studies, we also found some associations between dirty body regions and other housing (flooring) and management factors (cleanliness) (Sant'Anna *et al*.,2009).

In this study the majority of the cows were alert with normal rumen shape and mucous membrane of eyes, and relatively few cows showing mild to moderate lameness during the examination. Lameness is the major welfare problem for the dairy cow. Lameness has not only a major impact on welfare, it is also associated with poor performance and production (Hristov *et al*., 2005).

In my study the injuries to the different parts of the body were recorded appeared linked to the different risk factors arising from the type of housing environment. The examined body protuberances were the parts on which maximum pressure is exerted when lying down. Injuries to the tarsal and carpal areas were common, probably caused by the rough and pot-holed brick floors. Similar injuries have been described in other studies (Müller *et al*.,2014).

In this study the common diseases recorded were ectoparasites and diarrhoea with mastitis also being common. Mastitis is one of the most important health problems in dairy cattle, with a major impact on welfare. Ectoparasite infestation in cows, although being the most common disease recorded, did not have a significant association with milk production, unlike mastitis. This might not encourage farmers to treat their cows with parasiticides. However, ectoparasitism decreases the BCS of the cows, and the later in turn might affect the milk yield as an association between BCS and milk yield (Ariful *et al*.,2020). The principal component analysis demonstrated that teat cleanliness was antagonistic to other cleanliness measures, in particular, a negative correlation with udder cleanliness. This could be because dirty udders and flanks make the farmers clean the teats. The second factor seemed to relate to lesion sites, with hair loss, other skin lesions, and hind limb lesions being antagonistic to the neck and tuba coxae lesions.

In my study, almost every farmers were not familiar with the term 'Animal Welfare', but they demonstrated that they believed that animal suffering and its alleviation have important relationships with animal comfort. Our findings are in accordance with a previously conducted similar study. The few farmers who did not support the need for the alleviation of animal pain and suffering, as well as provision for animal comfort, were found to be better informed on factors that contribute to the improvement of production. Farmers therefore need training to understand basic concepts in animal welfare.

Chapter V

Conclusion

This study has indicated that some aspects of the Welfare Quality Assessment Protocol for cattle could be put in practice and implemented with some modifications for small scale production systems in Bangladesh. Welfare assessment using a full-scale version of the protocol should be explored in future studies. The study revealed that these dairy farming systems were associated with important animal welfare problems of injury and dirtiness in different parts of the body, which were related to reduced milk production. There was also evidence of inadequate use of vaccines and anthelmintics, which is likely to have a significant impact on the cow's welfare. The farmers in these smallholder units had little perception of animal welfare, and there was less recognition of the importance of good housing systems than other aspects of providing for the welfare of cows. There is a need to expose smallholder dairy farmers to training in good animal welfare practices, including appropriate housing designs, cleanliness of the house, and emphasizing the relationship between good animal welfare and productivity. Development of a countrywide framework for routine welfare assessment of smallholder dairy farms could help in the identification and ameliorations of welfare problems.

Chapter VI

Limitations

This study was conducted in a small scale, area and in a short time period which might not be representative. Regular follow up was not done due to biosecurity issues. And the staff members of the farm barely provided the adequate information.

Chapter VII

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APPENDIX

Dept. of Dairy & Poultry Science

Chattogram Veterinary and Animal Sciences University

Survey Questionnaire

Questionnaire on Animal Welfare Assessment of Dairy Farms at Daulatpur Upazila, Kushtia

Farm Level Data:

1. Name of the Farm owner & Address
    a) Name:

    Mob. :

    b) Address:
2. Farm ID:
3. Location of Farm:
   Union:…… Upazila:…….
4. Housing System:
5. Farm Size:
6. Information about dairy cattle:

Types of breed	Milch	Dry	Heifer	Calf	Bull	Total
Local						
Cross-breed						

7. Floor Type:
   Cemented:……. Brick:…….
8. Cleanliness of Floor**:**
9. Floor Cleaning Frequency/Day:
10. Feeds and Feeding:

Types of Feed	**Amount/Day/Cow**
Roughage	
Concentrate	

11. Water Source:
    Underground:……. Pond:……
12. Average Milk Yield/Day:
13. Mastitis Incidence: Yes/ No
14. Dystocia Incidence**:** Yes/ No
15. Farm Cleaning Frequency/Day:
    1 time/day:…… 2 times/day:…….. 3 times/day:……

Animal Level Date:

1. Breed**:**
   a. Local b. Cross
2. Age (Months):
3. Sex**:**
   a. Male b. Female
4. Body Weight (Kg):
5. BCS Score**:** 1/ 2/ 3/ 4
6. Deworming:
   a. Yes b. No
7. Last date of Deworming:
8. Deworming frequency/year: 1/2/3/4
9. Vaccination:
   a. Yes b. No
10. Last date of Vaccination:
11. Vaccination frequency/year: 1/2/3/4
12. Any disease/Disorder present:
    a. Yes b. No
13. Any Treatment:
    a. Yes b. No
14. Lameness:
    a. Yes b. No
15. Skin Lesion:
    a. Yes b. No
16. Ectoparasite:
    a. Yes b. No
17. Hoof:
    a. Well b. Deformed
18. Cleanliness:
    a. Yes b. No
19. Cleaning Frequency/day:
20. Nasal Discharge:
    a. Yes b. No
21. Ocular Discharge:
    a. Yes b. No
22. Vulvar Discharge:
    a. Yes b. No
23. Mastitis Incidence:
    a. Yes b. No
24. Dystocia Incidence:
    a. Yes b. No

Some General Information

1. Do the Owner and Personnel Familiar with Animal Welfare?
   Ans:
2. Do they follow veterinary ethics?
   Ans:
3. Do they provide food timely?
   Ans:
4. Do they treat the animals properly?
   Ans:
5. Do they give comfort accomodation to animals?
   Ans:
6. Are they suffering from pain and injury?
   Ans:

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The Author

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Biography

This is Md. Nihal Hasnain, son of Md. Tobarok Hossain and Mst. Nige Parvin. I am from Kushtia District of Khulna division, Bangladesh. I have passed my S.S.C exam in 2012 from Daulatpur Govt. Pilot Model Secondary School, Daulatpur, Kushtia and H.S.C exam in 2014 from Rajshahi Govt. City College, Rajshahi both obtained with G.P.A 5.00. I have got admitted into Doctor of Veterinary Medicine (DVM) degree under Chattogram Veterinary and Animal Sciences University, Chattogram in 2015-2016 session. As an upcoming veterinarian, I would like to delicate my rest of the life for the welfare of the animals. I am keen to be a researcher as well as a skilled practitioner.