A Production report

On

Clean milk production practices adopted by selected dairy farmers of Chattogram District, Bangladesh.

A Production report presented in partial Fulfillment of the requirement for the degree of

Doctor of Veterinary Medicine

A Report

submitted

By:

Md. Shaifur Rahman

Roll No: 15/ 51

Reg No: 01469

Intern ID: 47

Session: 2014 – 2015

Faculty of Veterinary Medicine

Chattogram Veterinary and Animal Sciences University

Khulshi, Chittagong-4225, Bangladesh

June, 2020

A Production report

on

Clean milk production practices adopted by selected dairy farmers of Chattogram District, Bangladesh.

A production report submitted as per approved style and content

.....

Signature of the Author

Md. Shaifur Rahman

Intern Id: 47

Roll No: 15/51

Reg No: 01469

Session: 2014-2015

.....

Signature of the Supervisor

Dr. A K M Humayun Kober

Professor

Department of Dairy and PoultryScience

Faculty of Veterinary Medicine

Faculty of Veterinary Medicine

Chattogram Veterinary and Animal Sciences University

Khulsi, Chattogram – 4225

June, 2020

Table of Contents

List of Figures

List of Table

Tables	Page

ABSTRACT

Milk is an easily perishable product it needs to be produced & handled in a hygienic way right from farm till it reaches to the consumers table. Considering the importance of adoption of clean milk production practices the present study was directed in Chattogram district to asses clean milk production practices adopted by the dairy farmers. A random sampling technique was used to elect the farmers. Farmers were selected randomly whose have at least 25 milch cow at the study period & making the sample size 10. The data was collected by personal interview method using structured interview schedules. The collected data was analyzed by estimating frequency, percentage etc. The result of the study revealed that majority (90%) of the respondents adopted cleaning of the animal house daily, very few (40%) respondents have construction of the pucca floor. All the farmers (100%) regularly adopted cleaning & washing animals & vaccination respectively. But very few (20%) farmers adopted regularly examine the animals by veterinarian which is an important preventive measures for clean milk production. Majority (80%) of the respondents keep milking area clean, disinfected & free from insects & flies but not a single respondents cleaned animal shed fifteen minutes before milking. Majority (80%) of the respondent's removal of dung & mud by washing udder, but none of the respondents practice pre & post teat dipping in potassium per manganite solution. All the respondents wash their hands with plain water before milking. Majority (90%) of the farmers adopted milking by healthy personnel and only a single respondent wear clean dress before milking. None of the respondents practice washing hind quarters or back of the cow before milking. All the respondents (100%) adopted full hand milking technique. Very few (20%) of the respondents first practiced the milking of healthy animals & used separate utensils for milking. Majority 80% & 70% of the personnel had adopted transfer the milk into processing units immediately after milking & passing the milk from sieve or muslin cloth for removal of dirt or other undesirable things respectively.

Keywords: Adoption; Clean milk production practices; hygiene and milking; udder and teat dipping

Chapter 1: Introduction

Milk production has been increasing day by day in Bangladesh. The annual milk production of Bangladesh is 9.4 million tones (according to the DLS., 2018) that cover 63% of the total requirement. Although the milk production is accelerated, the quality aspects of milk production has not receive adequate attention. The milk production could be accelerated in terms of quality and quantity with taking of good dairy farming practices (FAO., 2011). The top most important factor is milk quality in dairying today as consumer awareness in terms of "Clean Milk Production (CMP)". So clean milk production and adoption of hygiene and sanitation of farmers is decisive in food chain. Quality is a sequel of entirely integrated approach from dairy farm environment to the consumer's door. For attaining quality standard its need of time to be taken into consideration of strictly adopt the clean milk production practices at the house-hold level. Clean milk can be defined as milk drawn from the udder of healthy animals, which is collected in clean, dry milking pail and free from extraneous matter like dart, dust, flies, hay, manure etc. .Clean milk has normal flavor with low bacterial count and is safe for human consumption. For improving the quality and clean milk production, the Govt. of Bangladesh takes new scheme hardening infrastructure for quality and clean milk production. The department of livestock service (DLS) also play important role in this regard (LDDP Project, Dec 6, 2018).

In clean milk production practices the following measures should be taken care of.

These are:

1. Animal management of firm level.
    - Feeding
    - Housing
    - Animal health
2. Cleanliness of milking equipment's.
3. Hygienic milking practices.
4. Cooling.

Hygienic practice form clean milk production which are suitable for human consumption, bearing high keeping quality, high commercial value and high quality base suitable for processing, consequence in high quality finished product from all possible

sources of microbial contamination, milk needs to be protected. The possible sources of milk contamination are given bellow:

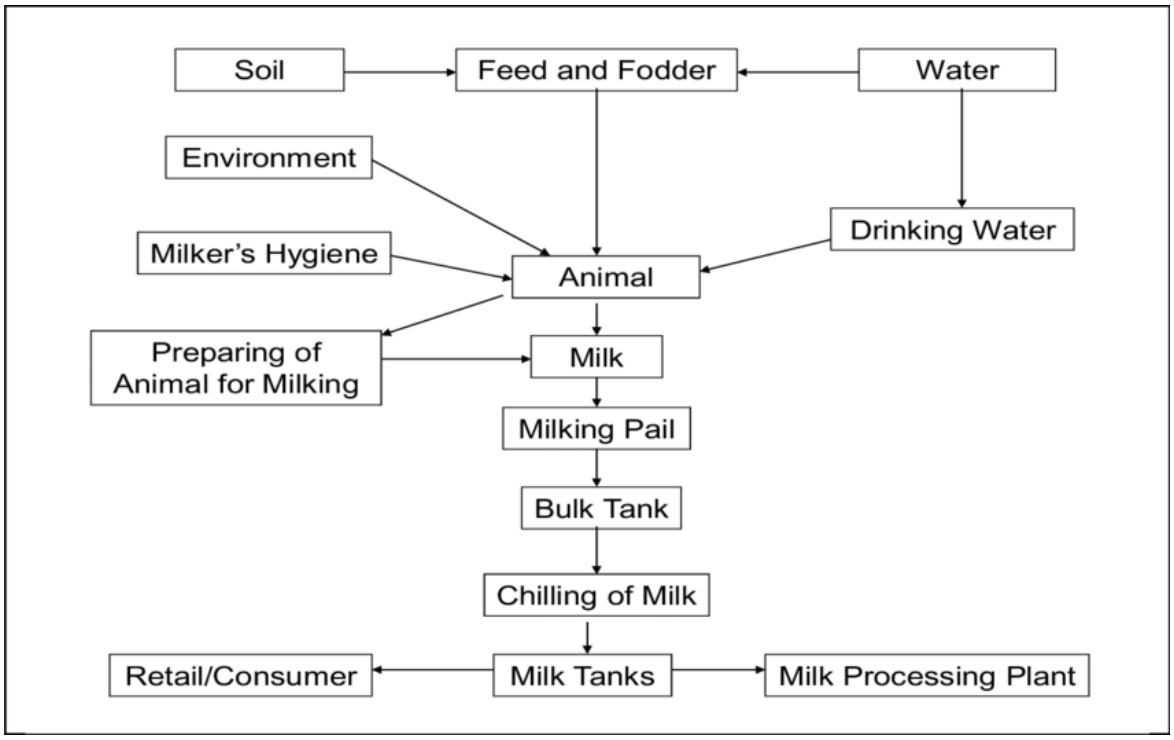

Fig 1: Sources of contamination of milk

During storage and transportation there is a high chance of milk contamination (Rathod et al., 2014). Milking is the key operation for clean milk production in a dairy farm. Milking also an art which requires skill and experience. Milking should be performed quietly, gently, quickly, overall cleanly. Cleanliness of animal houses, cleanliness of milking area,

Cleanliness of animals and milk man, cleanliness of milking utensils, pattern of milking, transportation of milk from dairy firm to processing units are very important adoption for dairy farmers. Clean milk production is regarded as one of the most important factors in the economy of Bangladesh, for increasing the quality of milk the adoption of clean milk production practices has huge potential. To best of my knowledge, in our country no attempt has yet been made to clean milk production. Hence, the present research was undertaken to evaluate clean milk production practices adopted by the selected dairy farmers in Chattogram district of Bangladesh.

Chapter 2: Materials and Methods

Chattogram district was purposively chosen for the study because it contain livestock population. For data collection, multistage random sampling technique was used to select the respondents. The persons who had at least 25 milch cow at the time of study are taken to respondents of the study which making the sample size 10.Data was collected by face-to-face interview of a semi-structured questionnaire. The selected farmers were interviewed by contacting them at their doorstep utilizing a pre-tested interview schedule developed for the purpose. Member of the family of that farmers were also engaged in collection of the data. The schedule was performed using different types of question i.e. “Yes/No”. Data was tabulated and analyzed mean, frequency and percentage and presented in this report in tabular form.

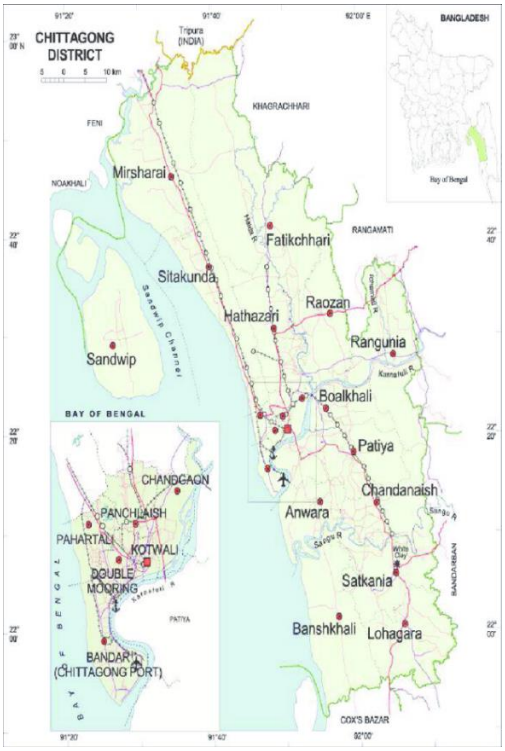

Fig 2: Study Area.

Fig 3: Interviewed by using questionnaire.

Chapter 3: Result & Discussion

A troublesome study of the data furnished in Table 1 show the practice wise adoption of clean milk production practices by dairy farmers, under the subheadings such as animal house, care of milking animals, feeding of milking animals, area of milking, udder management, dairy farmers personal hygiene, before milking cleanness of animals, techniques of milking, animals' milking pattern, care of milking utensils, post care of milking.

3.1 Hygiene of Animal House

In clean milk production practices hygiene of animal house is an important part because most of the farmers used traditional cattle shed even though they took enough care of health of their animal & hygienic practices for clean milk production practices. Result from table 1 revealed that majority 90% of the respondents cleaning animal house daily; 80% of the respondents washing the manager, gutter, floor regularly; provide ventilation of the animal house was adopted by 70% of the respondents; 60%& 50% of the respondents provide bedding materials & provide adequate space for each animals respectively; Very few 40% of the respondents collect urine in a pit outside the animal house by providing sloppy drainage, collect dung & dispose away from the Animal house, construction well drainage system &pucca floor respectively. The probable causes behind not to adoption of the hygiene of the animal shed may be the traditional cattle shed & lack of adequate knowledge regarding importance of hygiene of animal house for clean milk production practices. This findings is relevant with the findings of Gade et al., 2012&Surkaret al., 2014 who reported that very few dairy respondents have well drainage system & well pucca floor.

Fig 4: Animal house without well ventilation System.

Fig 5: Animal house without well Drainage System.

Fig 6: Collection pit.

3.2 Care of Milking animal

A close look at the table 1 revealed that 100% of the respondents vaccinate & deworm the animals regularly as well as clean & wash animals every day. The reasons behind high adoption of vaccination & deworming of animals were probably due to the well activities of DLS & District livestock office but it is a matter of regret that 30% of the respondents clipping hair around the udder & hind quarts of animals and only 20% of the farmers adopt regularly examine the animals by veterinarian which is a portent of low preventive measures for clean milk production.

Fig 7: Clean milch cow.

Table 1: Distribution of dairy farmers according to their practice wise adoption of clean milk production practices.

(Here, N=10)

Area of adoption about clean milk production	Frequency	Percentage (%)
(A) Animal house		
1. Provide ventilation to the animal house.	7	70
2. Provide bedding materials.	6	60
3. Provide adequate space for each animal to move round.	5	50
4. Collection of urine in pit outside the animal house by providing sloppy drainage.	4	40
5. Collect dung and dispose away from the animal house.	4	40
6. Clean animal house daily.	9	90
7. Washing the manager, gutter, floor regularly.	8	80
8. Construction of well drainage system and pucca floor.	4	40
(B) Care of milking animals		
1. Clean and wash animal every day.	10	100
2. Vaccinate animal regularly.	10	100
3. Deworming animal regularly.	10	100
4. Vet examine the animal regularly.	2	20
5. Clip hairs around the udder and hind quarters of animals.	3	30
(C) Feeding of milking animals		
1. Clean and fresh water provide the milking animals.	9	90
2. Provide 5-6 kg dry fodder (straw) and 1 kg concentrate mixer and additional 1 kg concentrate per 2-2.5 L milk production.	7 10	70 100
3. Before milking not to feed turnip, cabbage, and onion couples.		
(D) Milking area		
1. Keep milking area clean, disinfected, and free from insects and flies.	8	80
2. Clean animal sheds before 15 min of milking.	0	00
(E) Udder management		
1. Removal of dung and mud by washing udder.	8	80
2. After udder washing, wipe udder with dye cloth.	5 5	50 50
3. Different cloths are used for diseased udder.	0	00
4. Before and after milking dip the teats in potassium per manganet.	2	20
5. Vet examine teats, udder and milk regularly.		

Area of adoption about clean milk production	Frequency	Percentage (%)
(F) Dairy farmer's personal hygiene		
1. Milking by healthy personnel.	9	90
2. Before milking wearing clean dress.	0	00
3. Before milking washing hands with plain water.	10 4	100 40
4. Milk are protected from being exposed to cough and sneezing.	7	70
5. While showing disease symptoms always stop milk handling.		
(G)Before milking cleanness of animal		
1. Washing whole animal.	9	90
2. Before milking cleaning teats and udder.	8	80
3. Before milking washing hind quarter/black of cow.	0	00
(H) Techniques of milking		
1. Full hand milking technique.	10	100
2. Complete milking of animal within 6-7 min.	9	90
3. Drop out few strips of milk before starting milking.	0 5	00 50
4. Milking of high yielding animals three times a day.		
(I) Animals milking pattern		
1. First milking the healthy animal.	2	20
2. First milking the sick animal.	0	00
3. Milking randomly.	8	80
(J) Care of milking utensils		
1. For milking purpose use of clean, hygienic and dry utensils.	9	90
2. For milking of healthy and sick animal use separate utensils.	2	20
3. For milking use dom shaped milking pot.	0	00
4. Before milking cleaning the utensils by plain water.	10	100
(K) Post care of milking		
1. After milking keep animal standing position for 15 minute.	5	50
2. For removal of dirt passing the milk from sieve/muslin cloth.	7	70
3. Immediately after milking transfer the milk to processing unit.	8	80

3.3 Feeding of Milking Animal

An analysis of table 1 revealed that 90% of the farmers provide clean & fresh water to the milking animals & 70% of the farmers adopted the practices of giving 5-6kg dry fodder (straw) & 1 kg concentrate mixture & additional 1kg concentrate per 2-2.5 L milk production.100% of the farmers do not feed turnip, cabbage & onion couples before milking & most of the farmers were feeding seasonally available fodder to their animals.

3.4 Hygiene of Milking Area

A perusal of table 1 showed that 80% of the respondents keep milking area clean, disinfected, from insects & flies. None of the respondent clean animals shed before 15 minutes of milking that maybe the scarcity of time & poor acquaintances about the importance of keeping milking area clean for quality milk production. This visualization get support from the Mohan Kumaret al., 2016.

Fig 8: Unhygienic milking area.

3.5 Knowledge Regarding Udder Management

It’s revealed in the table 1 that, 80% of the respondents adopted removal of dung & mud by washing the udder & 50% of respondents are adopted wipe udder with dry clothes after udder washing & different clothes are used for diseased udder respectively. A very few 20% of the farmers performed regular examination of teats, udder & milk by veterinarian. None of the farmers practice pre & after teat dipping in potassium per manganite. The findings are relevant with the findings of Gade et al., 2012&Surkaret al., 2014. This malpractice is due to lack of proper guidance & awareness of the farmers about teat dipping which is important for udder health management and avert infection.

Fig 9: Udder and back adhered by dung.

3.6 Dairy Farmer's Personal Hygiene

Regarding personal hygiene of dairy farmers table 1 showed that, before milking 100%of the respondents wash their hands in plain water. Only 70% of the respondents stop milking while showing disease symptoms of an animal & majority 90% of the farmers adopted milking by healthy personnel. Milk are protected from being exposed to cough & sneezing only by 40% of the respondents.Only a single respondents wearedclean dress before milking during farm visit. The above findings were also seen by Mohan Kumaret al., 2016, Who reported that farm personnel washed their hands before milking but they do not used the antiseptic solution.

Fig 10: Milking by clean dressed healthy personnel.

3.7 Before Milking cleanness of Animals

Cleaning of animals is the foremost step of hygienic maintenance of clean milk production followed by cleaning of milers & utensils. A close perusal of the table 1 revealed that maximum respondents (90%) practiced washing the whole animals. Most of the milkers (80%) practiced cleaning teat & udder before milking but none of them were practiced washing hind quarters/ back of the cows before milking. Due to tight schedule of farming they paid less attention in this regard. Similar observation also found in the study of Girish et al., 2014 which revealed that very few milkers washing hind quarters before milking.

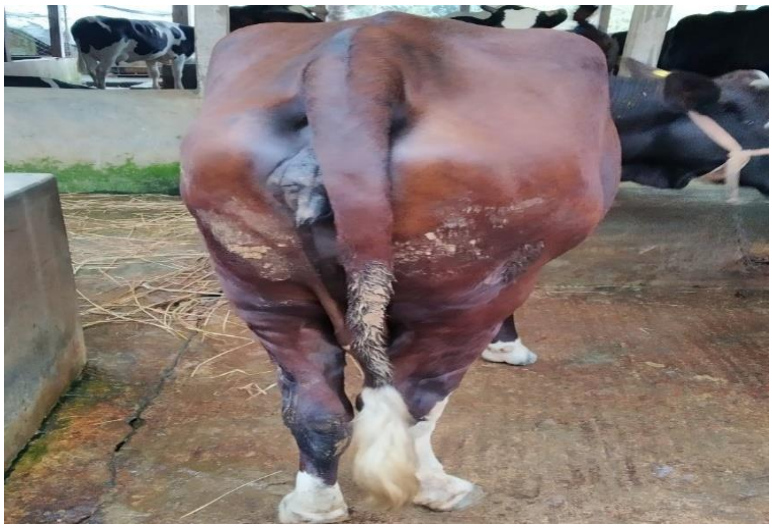

Fig 11: Dirty hind quarter / back of the cow.

3.8 Knowledge Regarding Techniques & Pattern of milking Animals

It was very interesting to know that maximum milkers (90%) complete milking of the animals within 6-7 minutes & all personnel (100%) performed full hands milking technique. Only 50% of the respondents performed milking of high yielding milch cow three times a day but not a single respondents drop out few strip of milk before starting of milking which may contains high yielding of microorganisms. As the respondents did not have enough knowledge they did not doing this precious thing. Similar findings also observed in the study of Sabapara et al., 2015. Table 1 also revealed that majority of the milkers (80%) milked the animals in a random basis. Only 20% of the respondents practiced milking the healthy animal in priority basis & none of them practiced milking the sick animal in prior basis.

Fig 12: Full hand milking technique.

3.9 Care of Milking Utensils

Cleaning of the milking utensils is one of the major part of the clean milk production practices, where utensils are prone to aspects related to milk deterioration. So there was an imperious need was felt to know the knowledge level of dairy farmers regarding cleaning of utensils. A careful look of the table 1 revealed that, before milking all the respondents (100%) cleaning the milking utensils by plain water. Majority 80% of the respondents use clean, hygienic & dry utensils for milking purposes. Very few 20% of the milkers use separate utensils for milking of healthy & sick animals respectively. Not

a single person use dom shaped milking pot for milking of the animals which is relevant to the study observed by Surkar et al., 2014.

3.10 Post Care of Milking

If the teat canal of milch animals remain open for few minutes & not to close after milking it may causes serious diseases like mastitis to the milking Animal which may causes devastating loss to the farmers. For choking this, animal must be feed after milking so that it may remain in standing position. A perusal of table 1 revealed that only 50% of the farmers adopted post milking feeding of the animals for 15 minutes so that the animals may remain in standing position & not to lay. About 70% of the respondents had adopted the practice of passing the milk from sieve/ muslin cloth for the removal of dirt or undesirable things. As the scarcity of cold storage facilities majority (80%) of the farmers transfer milk to the processing unit immediately or to middle man dealers after milking.

Fig 13: Passing the milk from sieve / muslin cloth.

Conclusion

The study concluded that the cleaning of animal house daily was adopted by majority (90%) of the respondents. Very few respondents (40%) have constructed the pucca floor, well drainage system in the animal shed and adequate ventilation in animal house. Majority (80%) of the respondents keep milking area clean, disinfested and free from flies and insects but none of the respondents cleaned animal shed fifteen minutes before milking. Most of respondents adopted the practice of vaccinate milking animals regularly, whereas deworming was practiced by very less percent of respondents. Very few respondents adopted regular examination of milking animal by veterinary doctor and clip hairs around the udder and hind quarter of the milking animal as a preventive measure for clean milk production. All respondents adopted practices i.e. avoids pesticide sprayed fodder to animal, providing clean and fresh water to milking animal for drinking followed by not to feed cabbage, turnip tops and onions couples of hours before milking. None of the respondent practiced post and pre-milking teat dipping in potassium permanganate solution. Majority of respondents preferred utensils made up of stainless steel for milking. All the respondents washed their hands with plain water before milking and trimmed their nails regularly. Milking by healthy person is adopted by majority of respondents. Not a single of respondents wash entire animal or washing hind quarter or back of cows before milking. Majority percent of respondents milked randomly milch animals whereas few percent adopt practiced of milking the healthy animals first. Most of the respondents complete milking within 6-7 minutes. None of the respondents dispose fore-milk and practiced post-milking feeding to keep animal in standing position for 15 minutes after milking. Only 70% had adopted the practiced of passing the milk from a sieve or muslin cloth for removal of the dirt.

Recommendations

- Farmers must be cautious about udder washing for clean & quality milk production.
- Respondents must be aware to dispose fore milk as it is high in microbial content.
- Farmers must be trained & educated to isolate sick animal & not to mix their milk with healthy animals' milk.
- Respondents must be careful about teat dipping because it is also an important practice of safe milk production
- Training & guidance should be given to dairy farmers & emphasized the need for hygienic practices at the farmers.

References

Department of Livestock Services & Livestock Dairy Development Project (LDDP), December 6., 2018.

Girish, D. and Ashok, P., 2014. Practice wise knowledge and adoption of clean milk production by dairy farm women in Junagadh district. Asian Journal of Animal Science, 9(2), pp.182-188.

Gade, Y. and andHemant Borate, A.P., 2012. Adoption of clean milk production practices by dairy farm women. Journal Agriculture Update, 7, pp.19-22.

IDF, F., 2011. Guide to good dairy farming practice. Animal Production and Health Guidelines; International Dairy Federation and the Food and Agriculture Organization of the United Nations: Rome, Italy, 8.

Mohankumar, S., Satyanarayan, K., Jagadeeswary, V. and Manjunatha, L., 2016. A comparative study of bacterial load under individual and community milking system in Kolar district of Karnataka. Asian Journal of Dairy and Food Research, 35(3), pp.206-209.

Rathod, P., Balraj, S., Dhanraj, G. and Madhu, R., Chennaveerappa and AjithMC.,2014. Knowledge level of dairy farmers about artificial insemination in Bidar district of Karnataka, India. Veterinary Research International, 2(2), pp.46-50.

Surkar, S.H., Sawarkar, S.W., Kolhe, R.P. and Basunathe, V.K., 2014. Adoption of quality milk production practices by dairy farmers in Wardha District of Maharashtra. Agriculture and Rural Development International, 1(1), pp.1-4.

Sabapara, G.P., Fulsoundar, A.B. and Kharadi, V.B., 2015. Milking and health care management practices followed by dairy animal owners in rural areas of Surat district. Sch. J. Agric. Vet. Sci, 2(2A), pp.112-117.

Appendix-1

Dept. of Dairy & Poultry science

Chattogram Veterinary and Animal Sciences University

Survey Questionnaire

Survey Questionnaire on Existing Condition on Clean Milk Production Practices and its Management

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

    Mob. :

    b) Address:

2. Owners occupation:
3. Educational Status :
4. Family Information: Male…….. Female……
   Total…….
5. Since how many years you are in dairy business? ……
6. Land Holding:
   ……
7. Total Animals:
   ……
8. Information about dairy cattle :

Types of breed	Milch	Dry	Heifer	Calf	Total
RCC					
Cross-breed					

9. Name of feed ingredients & feed cost per animal per day :

Types of breed	Roughage(TK)	Conc.(TK)	Total(TK)
RCC			
Cross-breed			

10. Average milk production & Price of Milk (per animal per day) :

Types of breed	Milk Production (Liter)	Price (TK)
RCC		
Cross-breed		

11. Milking machine model :
12. No. of cows milked with machine :
13. Breeding system: a)Natural b)AI c)Both

Distribution of dairy farmers according to their practice wise adoption of safe milk production practices

Area of adoption about safe milk production

A. Animal House

1. Provide ventilation to animal house :
   a) Yes b) No
2. Provide bedding materials :
   a) Yes b) No
3. Fill up cracks & crevices in animal house :
   a) Yes b) No
4. Tie animal at such a distance that they can't lick each other :
   a)Yes b)No
5. Provide adequate space for each animal to move around :
   a)Yes b)No
6. Collection of urine in a pit outside the animal house by providing sloppy drainage :
   a) Yes b)No
7. Collect the dung & dispose away from the animal house :
   a)Yes b)No
8. Clean animal house daily :
   a)Yes b)No
9. Washing the manager, gutter, floor regularly :
   a)Yes b)No
10. Regularly observe the milking barn, feeding manger, water tank :
    a)Yes b)No
11. Construction of well drainage system &pucca floor :
    a)Yes b)No

B. Milking Area

1. Clean animal shed before 15 min. of milking :
   a)Yes b)No
2. Keep milking area clean, disinfected, free from insects & flies :
   a)Yes b)No

C. Care of milking animal

1. Clean & wash animal everyday :
   a)Yes b)No
2. Clip hairs around the udder & hind quarter of the animal :
   a)Yes b)No
3. Not to use BHC or DDT as insecticide for controlling ectoparasite :
   a)Yes b)No
4. Vaccinate animal regularly :
   a)Yes b)No
5. Deworming animal regularly :
   a)Yes b)No
6. Vet. Examine the animal regularly :
   a)Yes b)No

D. Feeding of milking animal

1. Before milking not to feed turnip, cabbage, onions couples :
   a)Yes b)No
2. Pesticide sprayed fodder not to feed the animal :
   a)Yes b)No
3. Clean & fresh water provide the milking animal :
   a)Yes b)No
4. Provide 5-6 kg dry fodder(straws) & 1kg conc. Mixture & additional 1kg conc. Per 2-2.5L milk : a)Yes b)No

E. Udder management

1. Removal of dung & mud by washing udder :
   a)Yes b)No
2. After udder washing wipe udder with dry cloth :
   a)Yes b)No
3. Different cloth are used for diseased udder :
   a)Yes b)No
4. Before & after milking dip the teats in KMnO4 :
   a)Yes b)No
5. Before & after milking not to inject hormonal preparation :
   a)Yes b)No
6. Vet. Examine teats, udder & milk regularly :
   a)Yes b)No

F. Milking utensils/ Care of milking utensils

1. For milking purpose use of clean, hygienic & dry utensils :
   a)Yes b)No
2. For milking of healthy & sick animal use of separate utensils :
   a)Yes b)No
3. Use of milking utensils that are made by aluminum / stainless steel :
   a)Yes b)No
4. For milk collection not to use rusted can :
   a)Yes b)No
5. For milking use of dome shaped milking pots :
   a)Yes b)No
6. Before milking cleaning the utensils by plain water :
   a)Yes b)No

G. Dairy farmer's personal hygiene

1. Milking by healthy personnel :
   a)Yes b)No
2. While showing disease symptom always stop milk handling :
   a)Yes b)No
3. Regularly trimming the nails :
   a)Yes b)No
4. Before milking wearing the clean dress :
   a)Yes b)No
5. Head cover or handkerchief before milking :
   a)Yes b)No
6. Before milking washing hand with plain water :
   a)Yes b)No
7. In milk not to fall hair of milking persons :
   a)Yes b)No
8. Milk are protected from being exposed to coughing & sneezing :
   a)Yes b)No

H. Before milking cleanness of animals

1. Washing entire animal :
   a)Yes b)No
2. Before milking washing hind q./ back of cows :
   a)Yes b)No
3. Before milking cleaning teats & udder :
   a)Yes b)No
4. Before milking splashing of water on teats & udder :

a)Yes b)No

I. Animal's milking pattern

1. First milking the healthy animals :
   a)Yes b)No
2. First milking the sick animals :
   a)Yes b)No
3. Milking randomly :
   a)Yes b)No

J. Techniques of milking

1. Full hand milking technique :
   a)Yes b)No
2. Drop out few strips of milk before starting milking :
   a)Yes b)No

3. Complete milking of animal within 6-7 min. :
   a)Yes b)No
4. Milking of high yielding animals three times a day :
   a) Yes b)No

K. Post care of milking

1. After milking keep animal in standing position for 15min. :
   a)Yes b)No
2. For removal of dirt passing the milk from sieve/muslin cloth :
   a)Yes b)No
3. Immediately after milking transfer the milk to processing unit :
   a)Yes b)No

If the answer 'Yes 'what result effects did you observe?

1.
2.
3.
4.
5.

If the answer is 'No' what could be the reasons they are not followed?

1.
2.
3.
4.
5.

What are your suggestions for above points?

Suggestions:

Acknowledgement

All praises are due to "**Almighty Allah**" who enabled the author to complete this report successfully.

The author express his deep sense of gratitude, heartfelt respect and immense indebtness to his supervisor Prof. **Dr**. **A K M Humayun Kober**, Department of Dairy and Poultry Science, Chattogram Veterinary and Animal sciences University for his valuable advice, suggestions, inspiration and scholastic guidance.

The author deeply owe and express his deep sense of gratitude and thanks to Professor **Dr. Md. Abdul Ahad**, Dean, Faculty of Veterinary Medicine and Professor **Dr. A.K.M Saifuddin,** Director of External Affairs, Chittagong Veterinary and Animal Sciences University for their valuable suggestion & inspiration during this internship period.

I feel much pleasure to convey special thanks to Capt. DR. Sohel Rana (RV&FC, Bangladesh Army), DR. Umme Salma Amin, Naimul Hasan (FVM, 22th batch), Md. Hasibul Hasan (EWU), my seniors and my friends for their cordial help.

Last but not least I would like to express my gratitude, cordial respect to my beloved parents and my younger sister for their immense sacrifice, blessings and encouragement.

Biography

Name	Md. Shaifur Rahman
Parents name	Md. Azizur Rahman Mst. Shaifun Naher
Present position and affiliation	Intern student, 20thBatch, FVM, Chittagong Veterinary and Animal Science University.
Educational background and year	Doctor of Veterinary Medicine in2019 (appeared), Chittagong Veterinary and Animal Science University. I completed my S.S.C and H.S.C with GPA 5 from Govt. Sara Marwari Model School and College & Ishurdi Govt. College respectively.
Research interest	Pet Animal Sector
Aim	Work as a veterinary practitioner and carrying out the veterinary profession.