**Chapter I**

**INTRODUCTION**

Historical background shown that human is familiar with dairying from 9000BC (Animal Science Journal-1998).

Livestock plays an important role in the agricultural economy of Bangladesh. The non-crop agriculture sector has registered significantly higher growth rate over the last few years. The crop sector showed an annual growth rate of 1.2% while fisheries, livestock and forestry sub-sectors experienced 5.3**,** 5.6 and 4.0% growth rates respectively (Mondal, 1998). Contribution of livestock sub-sector to the GDP was 2.95%, which was estimated about 17.32% GDP to agriculture (DLS, 2010).

According to Bangladesh Economic Review (2006) and DLS (2008), per annual growth rate of 7.23% in GDP in 2004-2005 for livestock was the highest in all sub-sectors (Uddin, 2010).

The supply of the domestically produced livestock products (Meat & Milk) are increased 1.2% annually (DLS, 2000).

Milk production growth was increased from 4.1% to 7.4% per annum in 2000-2005 and 2005-2008 respectively (Hemme, 2008).

About 64% milk in Bangladesh comes from cattle (FAO, 2004). But it can fulfill only 13.6% of the total requirement in Bangladesh (BLRI, 2001).

For centuries Bangladesh has 24 million cattle, out of which 6 million are dairy cattle of local and crossbreds (DLS, 2008) and maintain the highest cattle densities of 145 large ruminants per square kilometer compared with 90 for India, 30 for Ethiopia, and 20 for Brazil (Karim, 1997). Among these population 6 million are dairy cattle (DLS, 2008) of which 92% are indigenous and 8% are crossbred cows (BBS, 2006).The numbers of dairy farms are estimated to be 1.4 million with an average small herd size of 1-3 cows (Hemme, 2008) which is an integral part of the mixed farming systems in Bangladesh (Saadullah, 2001) and a predominant source of income, nutrition and jobs (Haque, 2009).

The country has cattle population about 1.79% of the world and 5.47% of Asia (FAO, 2004a) and dairy cattle ranks 12th in the world and 3rd in Asian countries (Alam et al., 1994).

At present there are about 41,142 dairy farms in Bangladesh (DLS-2007). Port city Chittagong is in a flashing position on this prospect. Chittagong is called one of the important milk pocket zone of Bangladesh. Because this district bearing 940 registered (±15-20% unregistered) dairy farm (DLS-Chittagong-2009) which contribute about 2.28% of total dairy farm of Bangladesh. Near about 20,000-25,000 litter of milk produced from Chittagong per day (DLS-Chittagong-2008). So, dairy farming is now in a bright prospect at Chittagong.

‘Animal Husbandry’ may be defined as a science as well as an art of management including scientific feeding, breeding, housing, health care of common domestic animals aiming for maximum return (G.C.Banerjee-2007).Animal Husbandry is the aspect of agricultural concern with the care & breeding of domesticate animals such as cattle, goat, sheep, hog & horse (Colombia University-2007).

Chittagong is now in a very satisfactory position on dairy farming contrast. More or less, majority farms are in beneficial condition & contribute in national financial system. The husbandry practices of these farms are very important issue. For determination the actual condition of this dairy farms various parameters like housing, feeding, breeding, biosecurity & heath care management that mean the overall husbandry status need to evaluate & the current study was performed with the following objectives:

i. To observe the overall husbandry practices regarding production in some dairy farms at Chittagong Metropolitan Area.

ii. To find out the problems in different dairy farms at Chittagong.

iii. To suggest proper way of management to solve the problem.

**Chapter II**

**METHOD AND MATERIALS**

**2.1 Sample size**

The study was conducted on husbandry practice on 30 different dairy farm at Chittagong district area, which is the part of Chittagong division, Bangladesh. This area is located south-eastern region of Bangladesh at 22.2438 latitude and 92.0126 longitudes. This area is covered by hilly tracts.

**2.2 Sampling technique**

In order to collect the more purified data of various farms an organized questionnaire was formatted. The total duration of the study was August 2016 to September 2016.

**2.3 Data collection procedure**

Actually overall data of individual farms were core material in this occasion. These data were collected by using following techniques:

Visiting of individual farms.

Cross questioning to the owner /farmer/employee

Records maintain by the farmers (if there any)

**2.4 Selection of farm**

**Table 1: Selected 30 dairy farms in Chittagong Metropolitan Area for the study:**

|  |  |  |
| --- | --- | --- |
| **Name of the farm** | **Address** | **Farm code** |
| Hakim dairy farm | Potiya , Chittagong | F-1 |
| Mollah dairy farm | Potenga,Chittagong | F-2 |
| Raja-Badsha dairy farm. | Bondor, Chittagong | F-3 |
| Khaja dairy farm | Railway-colony, Chittagong. | F-4 |
| Khan dairy farm | Amanat-Bazar, Chittagong | F-5 |
| Janae Alam dairy farm | Rahattarpull-Chittagong | F-6 |
| Bhuyan dairy farm | Baluchora, Chittagong | F-7 |
| Model dairy farm | South-Shikkolbaha, Chittagong | F-8 |
| Bondhon dairy farm | South-Shikkolbaha, Chittagong | F-9 |
| Hoque Vander dairy farm | Rahattarpull-Chittagong | F-10 |
| Paharica dairy farm | Foticchori, Chittagong | F-11 |
| Rhaihyan dairy farm | Shikkolbaha-Chittagong | F-12 |
| Parvin dairy farm | North pahartoli-Chittagong | F-13 |
| Metro dairy farm | Jalalabad,Chittagong  | F-14 |
| Ruma dairy farm  | Shikkolbaha-Chittagong | F-15 |
| Chowdhury dairy farm | Chandgaon-Chittagong | F-16 |
| Home land dairy farm | Bhodderhatt, Chittagong | F-17 |
| Bangle dairy farm | Colonel Hatt,Chittagong | F-18 |
| Liza dairy farm | East backlia, Chittagong | F-19 |
| Poly dairy farm | Railway colony, Chittagong. | F-20 |
| Summiya dairy farm | Halishahar, Chittagong | F-21 |
| Sun-super co-operative dairy farm | Badurtola,Chalk-bazar, Chittagong. | F-22 |
| Jashim dairy farm | Cosmoplitonarea,Chittagong | F-23 |
| Morium dairy farm | Chaktai,Tulatoli,Chittagong | F-24 |
| Wahid dairy farm | Joldighiroar,Chittagong | F-25 |
| Super dairy farm | Nurumiarhat, Chittagong | F-26 |
| Moinuddin dairy farm | South-Shikkolbaha, Chittagong | F-27 |
| Wazidia dairy farm | Panchlise Chittagong | F-28 |
| Russel dairy farm | North-Nalapara, Chittagong | F-29 |
| Gousia dairy farm. | Master-Colony, Chittagong |  F-30 |

 MS Excel, MS Word were used to do this analysis in this study.

**2.5 Analytical technique**

After collecting all the data of individual dairy farms were analyze some very much vital husbandry issues like Housing, Feeding, Breeding, Udder heath status, Bio-security condition etc. Here we tried to make a comparative deviation on these key issues from a minimum standard that required for a dairy farm operation. These standards get through from various literatures. Actually percentage (%) of some special important husbandry practice is finding out here & graphically represent on some contrast.

**Chapter III**

**RESULT AND DISCUSSION**

**3.1 Housing strategy**

An efficient management of cattle will be incomplete without a well planned & adequate housing of cattle. Improper planning in the arrangement of animal housing may result in additional labour charges & thus curtail the profit of the owner. Figure 1 showed the different types of housing are practiced in different dairy farms in Chittagong Metropolitan Area. After analyzing the farms of Chittagong it was found that 48.65% face in, 41.35%face out, 6.85% mixed(both milch cow, dry cow, pregnant & sick animal in a single unite), 3.15% others housing system (Scattered) is practiced. According farmers point of view they have no enough land to procure the all types of house in the farm.

**Figure 1: Different types of housing system**

There was no free range or loose housing system all are intensive type of housing system is practiced in Chittagong.

**3.2 Type of Shed**

Individual sheds for individual categories of animal is required for a dairy farm to get optimum production. It is not only helps in easy management but also minimize different shorts of health hazards. Observation revealed that are using 76.66% totally single shed farm Separate maternity or calving shed; 86.65% calf shed, 23.33% isolation shed, 6.66% maternity shed and only 3.33% farms have bull shed (figure2). Actually maximum farmers prefer to rear the herd in a single shed except calf. They try to manage at least a minimum separate accommodation for calf.

 kjkjkjkjkjk

**Figure 2: Shed based housing feature**

After 7.00 pm though leisure period is started but farmers always try to keep attention through whole night for heat detection of cow. Some farmers want to supply feed & water for 24hrs.

**3.3 Dairy breeds available in Chittagong**

At present almost all farms have cross breed (Local x Friesian) dairy cow. Pure breed is very rare one. But Holstein-Friesian cross is in top level that is known as Australian cow to the local people. Friesian-Sahiwal, Friesian-local, Jersey-Sahiwal are the common cross bred dairy cow in Chittagong.

**3.4 Feeding management**

Feeding management is a key part of a dairy farm. The different dairy farms of Chittagong practiced the different types of feeding system. Farmers using the feeding system in Chittagong are not so scientific according to the established feeding standard. Actually farmers offered feed to their cattle on the basis of their man made mind on majority contrast. 100% of farm prepare a general mixture of concentrate feed but supply randomly to the various categories of animals like milch cow, pregnant cow, heifer, calf as well as the bull if there any. Every farmer supply a little bit higher amount of feed to the milch cow.

**3.4.1 Milch cow feeding**

Feeding system of various farms of Chittagong is roughage (straw, green grass) & concentrate based. But due to lack of available fodder land all farmers are not capable to supply green grass to their cattle. They tried of their best to offer green grass especially to their milch cow which are collected from the local area but not year round. Most of the dairy farm’s feeding systems are mainly concentrating based but straw is common in 100% farms. Crisis of green grass occur in rainy season specially. Molasses & straw based feeding system is very popular in maximum farms. Only few farms have their own source of straw & green grass like Napier, Para, and German. A huge part of feed source is buying. About 82% of farmers prefer to give roughage before milking & concentrate after milking. Feeding green grass is beneficial for milk production. After analyzing the farms we categories this topic in following way:

i. Green grass most of the time of the year (cultivated land or collected)-36.66%

ii. Green grass occasional (Collected or buying)-40.00%

iii. Green grass not at all-23.33%



**Figure 3: Status of green grass supply**

Only 20% of farms have the idea about the production specific feeding or but not about the ration. Every farmer bears the will to get maximum amount of milk from their cows, for this reason they use various types of feed ingredients.

**Table 2: The ingredients most commonly used are given bellow (farms, n=30):**

|  |  |
| --- | --- |
| **Name of the ingredients** | **% of farms are using** |
| **Straw** | **100** |
| Green grass(year round + occasional) | 42 |
| **Rice polish** | **93.33** |
| **Wheat bran**  | **96.66** |
| Moshur/Kheshari | 43.33 |
| Broken rice | 46.66 |
| Broken maize | 38.43 |
| Mustered oil cake  | 56.15 |
| Mug powder | 28.32 |
| **Pea husk** | **83.33** |

Some farmers bear the concept about the additional concentrate feeding for extra each litter of milk production. But not a single farm gives the actual measurement of feed according to different stage of cattle. They give either very excessive amount or less then the requirement which is cause of economic loss of the farm s to some extent.

From the general mixture of concentrate feed milch as well as the pregnant cows consume near about 3.5-4 kg in average, only pregnant & other cows 3-3.5 kg on average. Straw intake is about 4.5-5kg per cow but in case of pregnant cows it was 5-5.5kg.

 **Table 3: Amount of concentrate and straw supplied to animals**

|  |  |  |
| --- | --- | --- |
| **Cows** | **Concentrate (Kg/day)** | **Straw (kg/day)** |
| Milch and other cows | 3-3.5 | 4.5-5 |
| Pregnant cows | 3.5-4 | 5-5.5 |

**3.4.2 Calf feeding**

Calf feeding management is an important issue of a dairy farm because a healthy calf is the future profit of the farmer. Farmers in this case are not so concuss to special feeding of calf. About majority percent of farmer try to colostrums feeding to the calf but proper time & amount of feeding is questionable because farmers have the silly concept about the duration of the immunoglobulin activity of colostrums. For each 10kg body weight required 1 litter colostrums but due to lack of proper consultancy colostrums amount is not exact level on some extant. As a result disorder like indigestion or diarrhea occurs. In such condition farmers fear to colostrums feeding & result of unsound calf. In case of motherless calf farmers feed the calf by bottle feeder. Such case milk replacer is necessary but only 6.65% farms use it.

**3.5 Nutritional management**

 Nutrition is one of the important or major issues for a dairy farm because the body growth & production is directly related with the nutritional status but study shown that farmers not very much conscious about the nutritional requirement. The amount of protein, carbohydrate, vitamins, minerals are not in actual requirement state because 80% of farmers have no idea or knowledge on proximate components (CP, CF, NFE, Moisture, and Ash) levels of feed ingredients. Rest 20% have no strong concept.14-16% CP(YK Kim, DP Casper-2003) value is standard for dairy cattle but feed analyzed in our University animal nutrition laboratory shown only 26.66% dairy farms full fill the standard value of concentrate feed. Approximately 90% farmers supply the synthetic Vitamin-Mineral premix to avoid the nutritional deficiency of cattle rest are in ignorance minded. Everybody will to get milk this is why more or less every one use milk tonic.

**3.6 Water management**

Fresh & clean water supply is very essential issue for a dairy farm because it is called life as well as its influence various biomass parameter of dairy industry. Study shown that about 100% of dairy farm of Chittagong has their own source of water & water supply is adlibitum but cleanliness is obviously questionable. Water is given to the cattle holding in manger for 24 hrs & cows take it as their requirement. The whole study shown that cattle take water in 3 ways:

 Direct intake

 Water intake

 Water with straw

 Water with concentrate

Water intake is much higher in summer than the winter season. Farmers have no headache on actual amount of water as well as feed supply.

**3.7 Heat Detection status**

Properly heat detection is a crucial & very necessary factor for a dairy farm. A miss manage mental heat detection practice can lead huge economic loss of the farm. Farm analyzing of Chittagong had shown that maximum level of heat detection of cow done by the farm manager or the milkers during morning milking. Study find out that cow comes in heat at late/deep night, early in the morning & afternoon more profoundly. But survey proved that about 75% cows come in heat at early in the morning, 15% at deep or late night, 8% at afternoon & 2% in variable times of the day.

**Figure 4: Heat detecting period**

Farmers basically use the following common signs for heat detection:

* Bellowing
* Swollen vulva
* Restlessness & mounting
* Clean or stingy drooling mucous at the perennial region.

Other signs of heat detection like loss of appetite, arch back are the secondary observation.

**3.8 Breeding Management**

Breeding of cow in proper time is a key demand & profitable issue of a dairy farm. Missing of breeding in meaning full time cause conception failure as a result farmer fall in economic loss. Study shown that 96.65% of farms use AI technique for breeding. Only 3.35% of farm use both AI & Natural insemination technique.



 **Figure 5: Practiced breeding methods**

Each farm of Chittagong the AI technicians or VFA performed this job. Mostly they use HF semen. Matter of hope that farmers of different dairy farm of Chittagong built-up the concept of necessity to breed their cow in proper time that is within 12-18hrs of heat detection & they try it from their best but situation is not always in their favour to perform this habit. In most of the farm required more than one insemination some where it is more than twice or thrice.

In case of parturated cow they don’t breed in the first estrous period. Some farmers wait for 3-4 cycle. The number of AI indicates the calving interval of the farm. This figure is not so in satisfied state in Chittagong. The average value is representing in figure 6.

30%

40%

13.33%

13.33%

3%

0%

10%

20%

30%

40%

365-

386

387-

407

408-

428

429-

449

450-

470

**Figure 6: Calving interval feature**

Study shown that number of second insemination is higher than the first insemination

**3.9 Udder Health Management**

Healthy udder, much production, strong economic achievement. So udder health management is an important manifesto of a dairy farm. Farmers of Chittagong are more or less concern about this issue. On some contrast study shown that the udder health condition is not so praiseful. Near about all farms of Chittagong use mustered oil to create stimulation to the udder during milking. The vessels or bottle used for keeping oil are found in dirty condition. Lack of proper washing of hand both before & after milking cause udder health hazard. Observation reviled, about 56% of farm use normal water (i.e. not contain any disinfectant) for cleaning & washing the udder of cow more ever the cleanliness of water is questionable. But in case of conscious farmers mostly use Povisep or savlon for this purpose.



**Figure 7: Using agent for udder cleaning.**

Machine milking is useful to protect this short of hazard. Only 3.34% of farms use both machine as well as hand milking & rest 96.66% farm are in hand milking.



**Figure 8: Type of milking**

**3.10 Record Keeping Status**

In order to properly operate a dairy farm it is highly necessary to maintain various types of records because these are the indicator of some important parameters of a dairy farm. In Chittagong farmers basically keep these following records.

* + - * AI record (Breeding record)
			* Daily milk production record
			* Calving records including various calving difficulties
			* Therapeutics & vaccination record
			* Disease register

Farmers who are not interested to keep records they maintain minimum AI or breeding record. 73.33% farm keeps only AI record, 43.32% keep both AI & daily milk production record, 26.65% farms maintain not at all.



**Figure 9: Record keeping feature**

**3.11 Bio-security & Disease Management**

Farmers tried from their best to protect or control the herd from various disease as well as health hazard. Miss management & lack of fundamental knowledge suffered the herd from diseases & health disorder. Survey reviled in Chittagong these health hazards:

* Mastitis-Throughout farm based- problem-15.21 %( only clinical based)
	+ - * Milk fever/parturient paresis-12.25%
			* Ketosis-6.42%
			* Uterine/Vaginal prolepses-7.12%
			* FMD (Farm based problem)
			* Pneumonia-15%
			* Calf scour-18%
			* Parasitic infestation- Ascariasis (26%) & Mite

Infestations are highly prevalence hazards.



**Figure 10: Disease feature**

Prevention is better than cure. Farmers of little educated or none educated prefer to treat the animal after accuracy. Some farmers bear the concept that diseases are auto curable& take step at the eleventh hour. Problem is there that farmers are still on some contrast are not aware about booster medication. It is matter of fact that majority farmers called veterinarian only in critical situation otherwise they tried firstly by themselves or by quack indiscriminately using of antibiotics. Average calf mortality in Chittagong is 7-10%. However now a day’s farmers of this area build-up consciousness on preventive measures against diseases or health hazards.

 **Table 4: Health preventive measures of dairy farm at a glance**

|  |  |
| --- | --- |
| **Parameter** | **Percentage(%) of farm used** |
| Deworming | 48% |
| FMD vaccination | 42% |
| Anthrax vaccination | 12% |

From the literature our achievement that biosecurity is three forms in a dairy farm that are conceptual, structural & operational biosecurity. Survey of different farms of Chittagong clearly shown that operational biosecurity is not so satisfactory.

Maintenance of water & feed hygiene, bathing of cattle, properly cleaning & washing of the dairy utensils as well as the farm premises are valuable operational biosecurity portion.

Though nutritional value of feed is questionable but its storage system is good enough of different farm of Chittagong. Maximum farmers try to finish their storage feed within 2-3days & then buy the fresh feed from the sales man so the chance of mycotoxicosis is less in the farm.

 **Table 5: Water hygiene feature at a glance**

|  |  |
| --- | --- |
| **Water Hygiene status** | **Percentage (%)** |
| Satisfactory | 23% |
| Moderate | 41% |
| Unsatisfactory | 36% |

About 100% of farms able to supply adlibitum water daily to the cattle but maintenance of freshness & cleanliness of water in 36% farms are very much unsatisfactory. Because in that farms the water holding through or house are found in highly dirty condition & these are full with various unwanted matters like algae, unremoved feed particles, wires, part of shoes & so on objects which lead to create foul odor of water. 23% of farms actively maintain the water hygiene issue. Rests 41% are in moderate condition. At present state maximum farmer use modified water tank.

In Chittagong average twice in a day perform the activities like bathing (once in a day) of cows (depend on season), washing of floor & milk utensils.

Drainage feature, floor management, ventilation & dimension of the sheds of a farm are the most important observation under the structural biosecurity.

Sufficient drainage system helps in proper sewage disposal & it is very much necessary for Chittagong as the soil quality is clay type (Kazi Marufa-2006) which water absorbable capacity is less. In Chittagong 73.33% farms have sufficient & suitable drainage facility where as 26.67% are in insufficient position.



**Figure 11: Drainage feature**

Concrete floor facilitate easy washing & longevity. Cracky floor may lead to incidence of lameness & udder health hazard as well as the skin injury. 76.66% farms have concrete/cemented floor & 23.34% are herringboned (Especially in calf sheds). There were no kacha floors found in Chittagong.

Ventilation is necessary for the gaseous expulsion. Actually farmers have no idea on exact ventilation space for per sq inch/feet. But majority farms in Chittagong have normally sufficient air expulsion space. Proper ventilation is related with the dryness of the farm area specially the floor & suitable temperature regulation.

Limited entrance of out word men in dairy farm is an important part of biosecurity management.

Maintaining of quarantine period is valuable topic for dairy farm. But in Chittagong framers have very silly concept. Maximum farmer normally entrance a newly buying cow without following a minimum quarantine period.

Standard man power ratio of dairy herd is 1:10. In Chittagong 56.66% have good enough manpower & 43.34% farm lack in this point.

**Table 6: Feature of manpower ratio:**

|  |  |
| --- | --- |
| **Manpower ratio** | **Percentage (%)** |
| Sufficient | 56.66% |
| Insufficient | 43.34% |

**3.12 Identification feature of cattle in Chittagong**

Identification of cows help in identify the important parameters of a specific cow like breed, disease condition, conception status, milk production performance etc. This is an easy way of record keeping of a particular cow.

In Chittagong maximum small farmers use techniques like color of cow, congenital spots, acquired clues such as scar tissues, broken horn.

Moderately large & large sizes farm prefer ear tag, number code hanging with neck have mostly finding techniques.

An interesting matter is that both small & large farmers use some funny names for the identification of their cows like mastan, shohagi, kala, aduri, jolladi etc which are given by themselves. 26% farms decoratively maintain cattle identification procedure.

**Chapter IV**

**CONCLUSION**

The goal of dairy farms is to get the exponential profit. Without providing good facilities to the animals it is not possible to earn better output. Most of the farmers of the study area do not maintain standard husbandry practices regarding housing, feeding, bio-security measures, and health management. It was revealed from the study that all dairy farms under study are practicing artificial insemination without following any breeding policy. Inventory record, animal records, milk records, breeding records, sale record & income record are the vital records of a farm to get optimum profitability, but in the present study area farmers do not maintain any record except AI. In conclusion, dairy farming is a profitable business in Bangladesh no doubt if the farms be maintained properly. Husbandry practices are the key issue and all the farms should have careful about it to get maximum benefit from their farm. Then it would be possible to support the national economy by raising this potential industry in Bangladesh.

**Chapter V**

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**BIOGRAPHY**

I am Abdul Ahad, Son of Khalil Ahmed and Reduan Zannat. He is an interned veterinary doctor under the faculty of Veterinary Medicine (FVM) in Chittagong Veterinary and Animal Sciences University (CVASU). He passed his Secondary School Certificate (SSC) Examination in 2007 followed by Higher Secondary Certificate (HSC) Examination in 2009 from Chittagong board. In future he would like to do Research work about public health, Zoonotic diseases and animal welfare those take public health significance in the world regarding one health constitution.

**Questionnaire for data collection**

1.

a. Name of the farm..................................................

b. Name of the owner/Farmer/Employee....................

c. Father’s name...........................................................

d. Address: Village/Moholla..........Road no...........House no………

Union.....................Thana................P.O....................District............................Phone no/Mobile no.................

2. Type of cattle

a. Indigenous b. Cross-bred

3. Name of cultivated fodder: a. Napier b. Para .c German. d. others. e. None

4. Husbandry practice

A. Feeding

 >Type of feed: a. only roughage b. Only concentrate c. Both roughage & concentrate

B. Most commonly used roughage: a. Straw b. Green grass c. Both of them

C. Pattern of green grass feeding

 a. Year round b. Occasional c. Not at all

D. Type of the ration formulation

 a. General ration for all cattle

 b. Specific ration for individual stage of cattle.

E. Frequency of concentrate supply/day (Kg)

 a. Pregnant cow................ b. Milch cow.......................

 c. Heifer............................d. Calf................

 e. Bull (if any).................

F. Frequency of Straw supply/day (Kg)....................

G. Frequency of green grass supply/day (Kg)................

H. Pattern of straw supplementation

 a. Only Straw b. Straw mixed with molasses c. Both

 Name of commonly used feed ingredients:

Straw .Green grass. Rice polish. Wheat. Wheat bran.

Moshure/Kheshari .Soybean meal. Broken rice

 c. Broken maize. Mustered oil cake. Mug powder. White pea husk.

5. Source of water

 a. Deep tube well b. Pond

6. System of water storage

 a. Water tank b. Water house

7. Frequency of water supply

 a. Adlibitum b. Insufficient

8. How many times feed supp .

a. Single b. Twice c. Thrice d. More than these

 9. Name of supplementary feed..........................

 a. Colostrums feeding...Yes/No

10. Housing

 a. Face-in b. Face-out c. Mixed d. Others

11. Dimension of the house (specially the main shed)

 a. North-south b. East-west c. None of them

12. Number of sheds...............

13. Types of specific sheds in the farm

 a. Only single shaded farm b. Milch cow shed c. pregnant cow shed.

 d. Heifer shed e Calf shed f. Isolation shed.

 14. Type of manger

 Single manger for individual cow/calf

Single manger for two or more cow/calf

 15. Drainage facility

 a. Sufficient b. Insufficient.

 16. Floor made of Concrete/Plastered. Herring bone d. Kancha floor.

 17. Ventilation

 a. Sufficient .b. Insufficient.

 18. Have electric fan?...Yes/No

 19. Most common diseases prevalence in the farm

 Mastitis. Milk fever/parturient paresis. FMD.

 Skin diseases .Worm infestation. Diarrhea. Uterine/Vaginal prolepses

20. Management of disease condition:

Self management

 Quack

Veterinary doctor

21. Use the agent for udder cleanliness

Fresh water b. Povisep .c Savlone. d. Others agent e. None

22. Calving status

 a. Yearly b. One calf in 1.5 yr. c. More than that.

23. Use any disinfectant for cleaning & washing...Yes/Not

24. Name of the stimulating agent for milking

 . Mustered oil/other agent/none

25. Use the agent for udder cleanliness

 a. Fresh water b. Povisep c. Savlone d. Others agent e. None

26. Feature of Veterinary doctor calling

 a. Actively b. occasional c. In critical situation d. Not at all.

Name of the interviewee............... Name of the interviewer...........

Date.......... Date: ……………

Signature............. Signature ……………………