

# **A Production report on The Management Practice of Small Scale Dairy Farm**



**A Production report submitted by**

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# A Production Report On The Management Practice of Small Scale Dairy Farm



A Production report submitted as per approved style and  
contents

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# 1. ABSTRACT

The report makes an attempt to know the management practices of small-scale dairy farms at Savar upazila, Dhaka. All activities of husbandry related to housing, breeding feeding, milking, cleaning, washing, waste and disease management of dairy farms were observed and farmers were interviewed using a questionnaire. Level of milk producers on various dairy management practices with the help of an empirical study conducted in Savar. Farmers of different dairy farms follow different rules and regulations in small scale dairy farming. The findings have clearly shown that milk producing cows are increasing day by day but quality of management practices was moderate. Constrains of dairy farm management are arising faced by dairy farmers. As a result problems should be overcome and knowledge level of farmers in dairy farm management should be enriched.

## **2. Introduction**

Livestock has an important role to play in the economic development of Bangladesh, particularly in the dairy development sector. It provides milk, meat, hide and skin in addition to providing non-human farm energy needed. There are approximately 23.4 million cattle in the country of which about 10 million are dairy cattle. Although the supply of domestically produced animal products (milk, milk product and meat) has increased by about 1.2% annually, the per capita daily availability of milk and meat 32.6ml and 10.2g against the requirement of 250 ml and 120g respectively. Consequently, consumers face an acute shortage of livestock products like milk, and meat which supply fails to meet the requirements of 85 and 89% of the population respectively. The need for dairy development in countries like Bangladesh arise due to several consideration such as low per capita availability of milk, prevalence of unemployment, increasing living conditions of rural people, and achieving self-sufficiency in milk production etc. The major constraints to dairy cattle production are the shortages of quality feeds and fodder, the breeds of cattle, poor management practices and limited access to veterinary care and disorganized marketing systems.

## **Objectives**

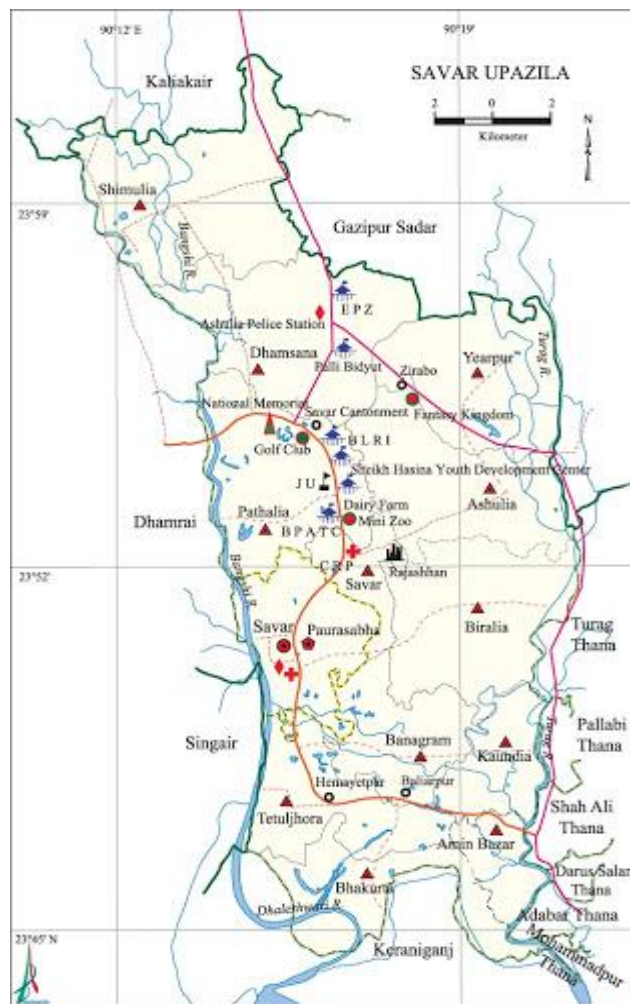
Considering these facts, the present study is designed with following objectives:

- 1.** To know the management practices of small-scale dairy farms.
- 2.** To identify the major constrains of dairy farm management.

# 3.MATERIALS AND METHODS

## 3.1. Study area:

The necessary data were collected from different farm of Savar, Dhaka.



### **3.2. Time of study:**

The study period was November, 2019 during internship placement.

### **3.3. Study procedure:**

The study was conducted based on the data collected through direct interviews. Initially draft questionnaire was prepared following other relevant questionnaire and information. Then it was pre tested among 10 respondents. Based on the result of pre testing, the questionnaire was improved, rearranged and improved. Data were collected by direct interviews. The question was asked systematically in a simple manner with explanation where ever necessary. The questionnaire was prepared in conformity with the objectives of the study. The important data examined by the questionnaire were total number of cattle, pattern of house, breeding. feeding, pattern of milking, bio-security, disease and waste management in dairy terms.

## 4. RESULTS AND DISCUSSION

The necessary data for the report were collected from different small-scale farm in Savar, Dhaka. The collected data of different farms about management practices are tabulated bellow

**Table 1: Number of animal and Housing system**

ID. No.	Occupation	No. of Animal				Housing
		Milking cow	Calf	Heifer	Dry cow	
1.	Agriculture	5	5	2	2	L.H
2.	Agriculture	4	3	2	-	C.M
3.	Business	7	7	2	1	L.H
4.	Agriculture	6	5	2	3	L.H
5.	Business	5	5	2	1	L.H
6.	Agriculture	4	4	1	2	C.M
7.	Agriculture	5	6	1	-	L.H
8.	Business	4	3	2	1	C.M
9.	Agriculture	4	4	1	1	L.H
10.	Agriculture	5	5	2	-	L.H

Note: LH- loose housing, CM- Conventional method

The table shows that there were practiced two types of housing system eg. loose housing and conventional method. Loose housing is commonly practiced because of its less land and economic requirements. Some farmers use conventional method for housing.



**Table 2 : Feeding Practices followed by farmers**

<b>ID. No.</b>	<b>No. of Animal</b>	<b>Feeds (Roughage / concentrate)</b>	<b>Amount (kg/day)</b>
1.	14	Roughage	110
		Concentrate	40
2.	9	Roughage	50
		Concentrate	25
3.	17	Roughage	120
		Concentrate	50
4.	16	Roughage	124
		Concentrate	40
5.	13	Roughage	110
		Concentrate	40
6.	11	Roughage	70
		Concentrate	30
7.	12	Roughage	90
		Concentrate	40
8.	10	Roughage	95
		Concentrate	35
9.	10	Roughage	93
		Concentrate	35
10.	12	Roughage	100
		Concentrate	42

The table shows the feeding practices of Savar region where farmers provided two types of feeds given to the animal. They were roughage and concentrate. Roughage requirements were fulfilled by providing straw and green grass. Some farmers cultivate napier, jambo, patchong grass. Concentrate were given in two ways like home made mixture and readymade feed. Homemade mixture made up with wheat bran, rice bran, broken maize, broken rice etc.

**Table 3: Milk production and marketing of milk**

<b>ID. No.</b>	<b>No. of milch animal</b>	<b>Frequency of milking</b>	<b>Milking System</b>	<b>Amount of milk (L)</b>	<b>Marketing of milk</b>
<b>1.</b>	5	Morning and Afternoon	Hand milking	60	Local market and hotel
<b>2.</b>	4	Morning and Afternoon	Hand milking	40	Local market
<b>3.</b>	7	Morning and Afternoon	Hand milking	70	Local market
<b>4.</b>	6	Morning and Afternoon	Hand milking	54	Misti ghor
<b>5.</b>	5	Morning and Afternoon	Hand milking	50	Local market and hotel
<b>6.</b>	4	Morning and Afternoon	Hand milking	44	Hotel
<b>7.</b>	5	Morning and Afternoon	Hand milking	45	Local market
<b>8.</b>	4	Morning and Afternoon	Hand milking	40	Local market
<b>9.</b>	4	Morning and Afternoon	Hand milking	40	Local market
<b>10.</b>	5	Morning and Afternoon	Hand milking	60	Local market

The table shows the milking system, milking frequency and marketing system of milk. Farmers liked milking twice daily and, in all cases, manual milking were found. Most of the farmers sold milk in local market.

**Table 4 : Disease Vaccination, Deworming and Servicing of Animal**

<b>ID. No.</b>	<b>Vaccination</b>	<b>Deworming</b>	<b>Disease</b>	<b>Servicing of Animal</b>
1.	Vaccinated	Yes	Foot rot, Mastitis, Parasitic	AI
2.	Vaccinated	Yes	FMD, Parasitic	AI
3.	Vaccinated	Yes	Parasitic	AI
4.	Vaccinated	Yes	Mastitis, FMD	AI
5.	Vaccinated	Yes	HS, Milk Fiver	AI
6.	Non-Vaccinated	Yes	Mastitis, FMD	AI
7.	Vaccinated	Yes	Mastitis, Parasitic	AI
8.	Vaccinated	Yes	HS, FMD	AI
9.	Vaccinated	Yes	Parasitic Mastitis	AI
10.	Vaccinated	Yes	Mastitis	AI

**Note:** **HS-** Hemorrhagic septicemia, **FMD-** Foot and Mouth Disease, **AI-** Artificial Insemination

The above table shows that most of the farmers use vaccine to prevent disease. All farmers use anthelmintic to deworm animal regularly. Farmers like artificial insemination to service their animal.

## **4.1. Housing management**

Housing means giving shelter to the animals to protect animals from sun burns, rain, hot and cold winds of harsh weather, wild animals and theft.

## **4.2. Objectives of proper housing**

1. Protect animals from sun burns, rain, hot and cold winds.
2. To provide clean and comfortable shelter
3. Providing better accommodation at a cheaper cost.
4. To protect animals from wild animals and theft.

Advantages of proper housing

1. Increased production of milk.
2. Better utilization of labor.
3. Production of higher quality milk and milk products.
4. Better health of animals.
5. Decrease in mortality rate of calves.
6. Proper disease control.
7. Better care and supervision of animals.
8. Proper and controlled feeding of animals.

## **4.3. Types of housing**

There are two types of housing:

1. Loose housing
2. Conventional method

### **1. Loose housing**

It is a system of housing in which animals are kept loose in an open paddock throughout the day and night except at the time of milking and treatment. In this system, shelter is provided along one side of open paddock under which animals can retire when it is very hot or cold or during rains. Common feed manger and water tank is provided and concentrates are fed at the milking time which is done in a separate milking barn in which cows are secured at milking time and are milked. The open paddock is enclosed by means of halt walls or plain wire fences of convenient height.

### **Advantages**

- Cost of construction is cheaper
- Future expansion is possible
- Future expansion is possible
- Animal can move easily
- Estrus detection is easy
- Common feeding and watering are possible

### **Disadvantages**

- It requires more floor space
- There is competition of feed
- Not suitable for Himalayan and heavy rainfall country.

## **2. Conventional Barns or Stanchion Barns**

In this system of housing, the animals are confined together on a platform and secured at neck by stanchions or neck chain. The animals are fed as well as milked in the same barn. These barns are completely covered with roofs and the sidewalls are closed with windows or ventilator located at suitable places to get more ventilation and lighting. It is applicable for temperate and heavy rainfall region.

### **Advantages**

The animals and men caring for animals are less exposed to harsh environment

- The animals can be kept clean.
- Diseases are better controlled.
- Individual care can be given.

### **Disadvantages**

- Cost of construction is more.
- Future expansion is difficult

#### **4.4. Various Buildings or units required for a Dairy farm**

Dairy cow building must have following parts

- Feeding passage
- Manger
- Standing space
- Gutter or drainage channel
- Milking passage

##### **Main building units**

- Milking barn or parlor
- Down calves shed / calving pen
- Calf pan
- Young stock or heifer shed
- Dry animal shed
- Bull shed
- Isolation shed

##### **Accessory buildings**

- Store room
- Milking room
- Hay or straw room
- Breeding room

#### **4.5. Breeding management**

##### **Management of calf after calving**

1. The cow assists the calf within 30 minutes after giving birth. If she does not get up soon after birth seek advice and assistance from a veterinarian.

2. The cow should be allowed to lick the calf after deliver. Licking stimulates the calf's blood circulation and may increase absorption of immunoglobulin in colostrum.
3. All calves should receive colostrum soon after birth. Research shows that 25 percent of the calves left alone after birth do not nurse within 8 hours and between 10 to 25 percent do not get adequate amounts of colostrum. Calves should receive 4 to 6 quarts (8 to 12 pounds) of undiluted colostrum per day for the first 3 days.
4. Total daily intake of colostrum should not exceed 10 percent of the calf's body weight. Because the newborn calves resistance diseases are greatly affected by the timing of the colostrum intake and its quality, colostrum should be fed within I hour of life. This will give the new born calf a higher level of antibodies in the blood and a better chance of survival until weaning age.

#### **4.6. Heifer reproductive management**

Heifers reach puberty when body weight is 30 to 40 percent of the average adult weight and should be ready to breed around 13 to 15 months of age. Puberty is delayed if growth is slowed by underfeeding, disease, or parasites. Low dietary energy levels can lead to ovarian inactivity. Inadequate protein intake and nutritional problems leading to anemia can cause silent or irregular heats. Deficiencies of phosphorus, vitamin A and vitamin E may also affect reproduction. Heifers approaching breeding age should be watched closely for heat to ensure that they are cycling. A veterinarian can examine heifers to determine those that are cycling and also identify those with congenital reproductive abnormalities.

A successful A.I. program involves routine heat detection and timely insemination. Considerable variations exist between animals. The average interval between heats for heifers is 20 days. All heat date should be recorded on a chart so that future heats can be anticipated. To monitor heats accurately farmers must clearly identify heifers with neck chains, large ear tags, freeze brands and check animals for heat behavior twice a day. If heat detection is routine and frequent, heifers should be inseminated 12 hours after the beginning of standing heat. When the onset of heat cannot be accurately determined because of infrequent heifers should be bred soon after standing heat is noticed

### **Heat detection and AI servicing**

Dairy farmers who cannot routinely check for heats may consider using heat synchronization and a controlled AI breeding program for selected months during the year. Veterinary surgeon or AI workers of Milk vita detect heat and service AI.

### **Feeding management**

In village cattle farms are dependent on crop residues and by products mainly straws, bran, cakes and molasses due to reduction of open grazing land. The traditional crop residues and by products including straw of paddy, wheat and maize, green grasses, rice bran etc.

### **4.7. Calf feeding**

Each calf should be given the colostrum of dam within 8-12 hours after birth and twice daily for 3 days.

#### **Importance of colostrum**

- It contains high amount of globulin which is source of antibodies.
- It contains 5-15 times more vitamin A than normal milk.
- It acts as laxative.
- It is also rich in Ca, Fe, Mg, Mn.

#### **Calf starter**

Calf starter is a nutritious pellet that is perfect for starting orphan or suckling calves. It is a crucial link to proper ruminal development. Intake of dry feed initiates rumen development and allows early weaning.

#### **Types of calf's starter**

There are many types of starters and other feeds available for calves.

These include:

1. Commercial textured calf starters
2. Commercial pelleted starters



3. Commercial lactation feeds
4. Home- made grind and mix starters

## **4.8. Supplementation of straw**

### **Supplementation by urea mixed in molasses**

The way of supplementation of straw feeding is supplemented by urea mixed with urea. Urea has 46% N<sub>2</sub>. This method of supplementation is very effective and economic.

Urea and molasses are urea as supplement by the following ratio

**Urea: molasses - 1:12**

At first the supplementation was started with 50gm of urea and 12 times more molasses. The amount of urea they increased in animal feed per week at the rate of 5 gm. If any kind of loose motion is shown after of urea supplement than they supply of urea should be stopped. In this supplementation molasses supply about 3% protein and 10% ash comprising excellent source of minerals excepts phosphorus. Molasses also rich in niacin and pantothenic acid.

Liquid supplement by urea in the liquid molasses along with minerals and vitamins. Normally it is prepared by completely dissolving 2.5 parts of urea in equal amount of water. The mixture is fortified with vita blend AD3 at the rate 25gm per 100kg of liquid feed. Common salt at the rate of 1 part and mineral mixture 2 parts are sprinkled over 92 parts of sugar cane molasses.

### **Forages**

Any vegetable materials that may fresh preserved and used for feeding of animals for their proper nourishment. e.g. straw, hay, green fodder etc. Available forages in milk vita area are rice straw, road side grass, tree leaves, green fodder (legume and non-legume), water hyacinth etc.

## **4.9.Suggested ration for dairy cows**

The objective in formulating ration is to provide animals with a consumable quantity or feedstuffs that will supply all required nutrients in adequate or greater amounts and do so in a cost-effective way. Thumbs rule for lactating cows -

a) DMI will depend on the body weight of the animal. The more the body weight, the more the less the unit of dry matter intake per unit body weight and vice-versa. Generally, DMI of dairy animals vary between 2 to 3.0 kg per kg body weight.

b) Forage DM minimum 40% of total DMI or approximately 1.5 % of BW.

c) Maximum grain DMI is 80% or 2 % of BW for 5 to 30 Lit milk/ day. Feed grain 500g for 15 liters of milk.

d) Protein 17-19% in early lactation ration. Limit urea to 200g/ day. Maximum total fat in ration is 7% of the DM and not more than 2% of any one of animal .or plant source.

e) supplementation of vit. A, D, E and minerals to meet requirements.

### **Milking System**

It is mainly two types-

- Hand milking
- Machine milking

### **Management after milking**

- a. Cow should be kept in standing condition
- b. Provide straw to cows
- c. Teats of cow should be washed with iodine.

## **4.10. Waste management in dairy farm**

Feces and urine are mainly regarded as the waste product of a dairy farm. Feces are disposed in several ways. Urine and feces made into compost and organic fertilizer which is used in crop field. Some farmers use feces to make bio gas plant.

Disease managements by maintaining biosecurity in Dairy Farm:

Outbreaks of infectious diseases have shown that it pays to be conscientious about preventing and controlling infectious disease on livestock operations. This concept is known as bio-security. Bio-security refers to management practices that reduce the chances infectious diseases will be carried onto the farm by animals or people. Bio-security also reduces the spread of infectious disease on farms in two ways

- Strategic vaccination
  - Preventing the introduction and spread of infectious diseases
- a. Keeping a closed herd
  - b. Purchasing disease free and vaccinated new cattle
  - c. Resident cattle should be vaccinated.
  - d. the known source of purchased cattle
    - I. Bring in only animals from herds where you know the health status.
    - II. Bring in only animals from herds with a known effective vaccination program. Get specific information about the vaccination history such as when vaccine was used and when it was given. If killed vaccines were used, make sure that a primary series (two doses given a few weeks apart) was given.
    - III. Buy heifers when purchasing a group of cattle. Because they aren't milking, heifers are easier to quarantine
    - IV. Transport animals in a vehicle that has been cleaned and disinfected before pick up.
  - e. Introducing new arrivals
    - I. Quarantine new animals for 30 days before allowing cattle with animal's on farm.

- II. Designate quarantine area. It should be separated from another cattle farm. To prevent the spread of respiratory diseases, quarantined cattle should not share the same airspace with resident cattle.
- III. Quarantined cattle should not share feeders, waterer or equipment with resident cattle.
- IV. Use a medicated foot bath before allowing purchased cattle to enter the herd.
- V. Prevent the spread of contagious mastitis by milking the new animals last. Sanitize the milking equipment after milking new cattle.

f. Test all purchased cattle for infection with BVD virus Johne's disease Mastitis

g. Controlling farm traffic. Infectious diseases can be carried by people and equipment too.

So-

- I. Limit people's access to the barn. This may mean locking the door to the barn.
- II. Post a warning sign asking visitors to keep out.
- III. Make sure visitors wear clean boots and clothing in the barn.
- IV. Make sure visitors use a foot bath and clean their boots

#### **4.11. Constraints faced by dairy farmers**

Specific constraints which limit entry into small scale commercial dairying include:

1. Capital investment for the cost of a dairy animal, feed and equipment is very necessary. This outlay can however be reduced by starting dairying with goats or sheep instead of dairy cows or buffaloes or by using indigenous animal. Although their output will be smaller, it represents a lower risk.
2. Water is needed not only for the dairy animals to drink but also for the hygienic value through processing which often makes small scale dairying attractive. But supply of added hygienic fresh water is insufficient.
3. Knowledge of animal husbandry, particularly nutrition is essential for commercial dairy farming. For a commercial smallholder farmer keeping dairy animals, animal feeding typically makes up 60-70 percent of the cost of milk production.
4. Access to support services such as feed supply, animal health extension and AI.
5. Recent technological developments include low cost packaging and pasteurization systems which are in high demand in developing dairy nations. Clearly there are instances when the

cost of milk production and the level of required basic infrastructure render dairy production uncompetitive. The measure of competitiveness should also consider strong influencing factors such as local market preferences (e.g. for local fresh milk). Farmers are often not aware of what is needed by the market and have neither the time nor capacity to research market demand. Middlemen or intermediaries are often maligned for their role and considered as an unnecessary element in dairy.

6. Physical infrastructure such as poor road access.

7. Lack of a reliable electrical supply also limits market access.

8. Lack of means of milk preservation. Fresh milk is highly perishable with a shelf life of about three hours at tropical temperatures after which it acidifies or sours.

9. Poor seasonal access to rural farms results in huge milk losses for small scale producers who do not have the means to invest in cooling equipment.

## 5. CONCLUSION

Dairy farming is an important topic in a developing country like Bangladesh. But the major constraints on dairy cattle production are the shortage of feeds and fodder (both in terms of quality and quantity), the breeds of cattle available and poor management practices and veterinary health care, as well as the lack of marketing facilities. Increasing milk production in small-scale commercial dairy farms and enhancing livelihoods of farmers depend mostly on the adoption of appropriate feed technologies. These need to be based on locally available feed resources and improved support services (such as improved feeding systems, appropriate breeding programs, credit facilities and veterinary health care and marketing systems). Because of their low level of milk production, indigenous cattle are often graded as inefficient when compared with western exotic cattle; however, classification on the basis of milk yield ignores the multipurpose utility of indigenous cattle, their energetic usefulness and adaptation to the local resources and environment. Therefore, efforts need to be made to improve the economic characteristics of indigenous cattle in Bangladesh. The role of women in farm activities, especially dairying and investment in the homestead and cultivated lands needs to be assessed for future research-oriented development activities in Bangladesh. The marketing of animals and their products is disorganized. The development of small-scale dairy farming (4-10 milking cows) remains at a very early stage although these farms are producing a reliable and steady source of cash income for their owner's subsistence. Establishment, by the rural poor, of small-scale dairy enterprise and processing unit's needs to be encouraged through appropriate policy and institutional support. For smallholders, technological change must serve to increase resource productivity and labor productivity. It should be characterized by low cost and low external input requirements in order to facilitate its adoption by small-scale farmers, accordingly, efforts need to be made to develop linkages and co-ordination of research programs among the national and regional research institutes or universities.

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