



Ministry of Rural Development



Technical Bulletin Cattle Rearing

**A Sustainable Livelihood
for SHG Member
Part II: Health
Management
of Cattle**

Introduction to Cattle Farming

The Deendayal Antyodaya Yojana - National Rural Livelihoods Mission (DAYNRLM) is a flagship program of Govt. of India, dedicated to eradicating poverty and promoting sustainable livelihoods in rural areas. DAY-NRLM focuses on empowering rural women through the formation of Self-Help Groups (SHGs) and community institutions. The DAY-NRLM is making concerted efforts to augment livelihoods of SHG women through multiple farm, allied and non-farm activities. Cattle rearing is one of most crucial components among these activities. It offers SHG women an opportunity to generate income, achieve self-sufficiency, and strengthen their economic prospects.

With its adaption to diverse environments and being complimentary to agriculture farming, cattle farming presents an attractive opportunity for SHG women. It is easy for farmers with even small land holding to rear cattle as the waste from the crops and fodder grown becomes nutrition for the cattle. This bulletin aims to equip the farmers with the knowledge necessary for efficient and profitable cattle rearing. The Technical Bulletin has been structured into four parts to serve as a comprehensive resource for individuals and organizations seeking to enhance their knowledge and skill in cattle farming. Each part offers specific insights and guidance, covering various aspects of cattle rearing, from its significance to selection of breeds, signs of healthy animal, feeding, health & disease management, and general management practices. By dividing the information into these distinct sections, the Technical Bulletin aims to provide a systematic and accessible resource that equips readers with the knowledge and skills necessary for successful and sustainable cattle rearing. These four parts collectively offer a valuable reference for achieving success in the field. This section introduces to the Cattle farming, its relevance, feed and fodder management for cattle. With the potential to generate sustainable livelihood, cattle offer an accessible and economically viable opportunity for women to secure their financial independence.

Benefits of Dairy Farming:

1. **Weather Independent:** Unlike many other agricultural sectors, dairy production is **unaffected by rainfall**. The feed and fodder required for feeding the dairy animal is either produced throughout the year or could be stored as hay for dry fodder and silage for green fodder in the season of excess production.
2. **Stable Pricing:** The price of milk in the market has **consistently held steady**, even during times of supply surplus. This stability benefits both producers and consumers.
3. **Growing Demand:** The demand for dairy products continues to rise, driven by both vegetarians and non-vegetarians. This sustained demand ensures a stable market.
4. **Easy to Market:** Marketing dairy products is straightforward. There's no need for specialized shops, and marketing expenses are relatively low compared to other industries.
5. **Guaranteed Income:** Dairy farming provides a **reliable annual income**, making it a unique industry in this regard.

The technical bulletin on cattle rearing has four components viz. breeds of cattle, health management, housing of cattle, feed and fodder management. In this bulletin the health management of cattle will be discussed.

Health Management

Health management is a critical factor affecting the production and productivity of cattle and in turn has direct impact on the returns to the owner of the cattle. Therefore, it has to be taken care by the cattle owner on the priority basis.

i. Indicators for Health Checks of Cattle

There are certain health indicators which are to be considered while purchasing cattle to ascertain its health status. The indicator like status of eyes, nose, coat, weight, mobility, udder, history of number of calving, milk yield etc, along with age and attitude of cattle.

- **Eyes:** bright, clear and not runny (no discharge), crusty or bloodshot.
- **Nose:** cool, moist muzzle, with frequent licking; breathing should be regular and not laboured; beware of discharge, coughing, wheezing or irregular breathing.
- **Coat:** Glossy, clean and un-matted, free of ticks/lice, other parasites or eruptions.
- **Weight:** Average weight for the breed; beware of emaciated or thin animals.
- **Mobility:** Walking should be easy and free of limps; beware of slow or uneven gaits or hunched positions when sitting; the animal should be able to rise from seated positions with ease.
- **Udder:** Healthy; size isn't necessarily an indicator of a good udder. It should sit forward with prominent milk veins, not sag and not be too meaty. Observe the cow when she walks, the udder should not show too much sideways movement
- **History:** It is important to have a record of the detailed history of the animal on number of calvings, recorded milk yield during previous lactation, any specific disease occurrence like mastitis, prolapse of uterus, ROP, dystocia, hypocalcaemia etc.
- **Age:** Though not directly related to health, the farmer should also ensure the age of the animal by referring to its dentition.
- **Attitude:** Curious, alert and contented; beware of cattle that stand apart from the herd, that seem disinterested or that show signs of a bad temper.

ii. Observing Basic Health Parameters

The regular health check -up of cattle is done on the following parameters to ascertain their health status.

- Breathing frequency:** (Breathing in + breathing out) is 10-30 times per minute in normal adults and 30-50 times per minute in calves. Observed best from the animal's right flank, seen from behind.
- Rumination:** Not less than 40 times per minute and 7-10 hours per day.
- Rumen movement:** Two to three per minute, can be felt by pressing lightly on the upper part of the left flank.
- Appearance:** A healthy animal has a shining, smooth and even coat as well as shiny horns and hoofs. Eyes should also be normal without discharge or tears and muzzle moist.
- Fever:** Usually accompanied by rapid breathing, shivering and occasionally diarrhoea. Ears, horns and legs are usually cold to touch while body is too warm. If any change is observed in the above parameters or fever seen, consult a veterinarian.

iii. Diagnosis of Prevalent Diseases, Symptoms & Preventive Measures in Cattle

Definition of Disease

A disorder of structure or function in a human, animal, or plant, especially one that produces specific symptoms or that affects a specific location and is not simply a direct result of physical injury. synonyms: illness, sickness, ill health etc.

OR

A pathological condition of a body part, an organ, or a system resulting from various causes, such as infection, genetic defect, or environmental stress, and characterized by an identifiable group of signs or symptoms.

1. **Viral:** caused by viruses. Examples include Foot and mouth disease, Rabies, Rinderpest, Sheep and Goat pox, blue tongue, ephemeral fever etc.
2. **Bacterial:** caused by bacteria. Examples include Haemorrhagic septicaemia, Black Quarter, Tuberculosis, anthrax etc.
3. **Protozoal:** caused by protozoa. Examples includes Babesia, Theileriasis etc.
4. **Metabolic:** Caused due to metabolic disorder. Example- milk fever, ketosis etc.

A few common diseases have been described below:

1. **Viral Diseases:** Virus is defined as an infective agent that typically consists of a nucleic acid molecule in a protein coat, is too small to be seen by light microscopy, and is able to multiply only within the living cells of a host.

a. Foot and Mouth Disease (FMD)

- **Transmission:** Direct contact with the infected animals, infective materials, water, airways etc
- **Symptoms:** Salivation, sores on feet and tongue ulcers, lameness, high fever initially, lethargy, reduced feed intake, drop in milk yield .
- **Preventive measures:**
 - Segregation and other sanitation measures.
 - All equipment used should be cleaned and disinfected with 4% sodium carbonate solution or as suggested by a veterinarian.
 - Vaccination: i) Get your animals aged 4 months and above vaccinated once in 6 months.



ii) FMD vaccination in March-April or before monsoon

- **Treatment:** Treatment is only symptomatic; the disease will run its course.
- **Localized treatment:** Rinse the ulcerated vesicles found on mouth, tongue, leg, hoof, teat with one of following solutions- normal saline, acid citric 1% or potassium permanganate 1%, Alum 2%, Methylene Blue 1%, (or use juice of sour fruits like star fruit, lemon for washing ulceration in mouth, tongue, twice a day). For buffalo and cattle, after cleaning the wounds in teat and the limbs with normal saline and drying, apply antiseptic then ointment over the wound. Bandage all legs for the prevention of flies.

b. Rabies

- **Causative agent:** Virus
- **Transmission:** Dog bite or contact with saliva of infected animals. It is a zoonotic disease transmitted by rabid skunks, foxes, raccoons or bats who bite an animal.
- **Symptoms:** Drooling of saliva, fail attempts to swallow, paralysis start from the posterior, abdominal gait, restlessness and aimless moving, violent behaviours, biting of inanimates objects.



- **Preventive Treatment:** Advice the farmer to remove stray dog, isolation of infected animals, vaccination. Annual vaccination of susceptible animal.
- **Treatment:** Euthanizing is recommended in cases with clinical signs of disease, there is no curable treatment.

2. Bacterial Diseases: Disease caused by bacteria

a. Haemorrhagic Septicaemia (HS)

- **Transmission:** Contaminated feed, water, inhalation, by blood sucking parasites, fatigue from journey predisposing factor, direct contact from diseased animal
- **Symptoms:** High fever (107F), Swelling in s/c region of throat and neck, Difficult breathing with respiratory sound, mucus discharge from nose, death in 24 hours 70 to 100 percent.



- **Preventive measures:**

- Segregate the sick animal from healthy ones and avoid contamination of feed, fodder and water.
- Avoid crowding especially during wet seasons.
- Vaccinate all animals which are 6 months and above of age annually before the onset of monsoon in endemic areas.

- **Treatment:** It can be treated using antibiotics.

b. Anthrax

- **Transmission:** Water and food contaminated with blood and by wound infection or excretions
- **Symptoms:** Sudden death, very high fever, bleeding from natural orifices, distress, trembling, shocking, convulsions

- **Preventive Measures:**

- Regular annual vaccination of animals in endemic areas will prevent the disease from occurring.
- Vaccination may be carried out at least a month prior to expected disease occurrence in endemic areas.
- Never open a carcass of an animal suspected to have died from Anthrax.
- Contact a veterinarian immediately if the above symptoms are seen and seek advice on control measures to be adopted.



- **Treatment:** Contact a veterinarian immediately.

c. Mastitis

- **Transmission:** Mammary glands infected bacteria, fungus and virus, injury to teat glands, incomplete milking, wet and dirty floor
- **Symptoms:** Swelling of one or more quarters, pain in affected quarter, clots of milk in initial stage, pus, blood clots, turbid thin milk in advance cases



- **Preventive Measures:** Manage the pre-disposing factors of mastitis properly.

- Before milking, clean the udder well with clean water and wipe dry with clean towel. Should use separate cloth towel for each animal. Disposable paper towel is also an option. Repeated use of unclean towel may itself predispose to mastitis. Milking should be quick, complete and hygienic.

- Milk animals with chronic mastitis in the end.
 - Carry out teat dipping or spray immediately after milking.
 - Prevent the animal from sitting for at least 30-45 minutes after milking.
 - Periodically check and treat for sub-clinical mastitis
 - Keep the floor of the cattle shed without holes and as dry as possible.
 - Continue teat dipping/spray 2 weeks after drying off and start the practice two weeks before calving.
 - Carry out proper fly control.
 - Treatment:
 - Contact a veterinarian immediately. Early treatment (within 2-3 hours) improves the chances of cure, delayed treatment may cause loss of udder or even death of animal.
 - Milk of animal suffering from mastitis should be discarded at least for 4 days after the treatment is over or as directed by the veterinarian.
- 3. Protozoan Diseases:** Protozoan infections are parasitic diseases caused by organisms known as Protozoa.

a. Theileriosis

- **Transmission:** Tick infestation
- **Symptoms:** Fever, swollen peripheral lymph nodes, pallour of mucous membranes, anaemia, nasal discharge, jaundice, salivation, rapid and shallow breathing, watery eyes etc.
- **Preventive Measures:**
 - Regular tick control is the most effective way to keep these infections in check.
 - Seek veterinary treatment if above symptoms of any of the above diseases are seen, since treatment is most effective in the initial stages. Delays may result in death.
- For control of theileriosis, vaccinate all exotic and crossbred animals aged 3 months and above, once in its lifetime.



b. Babesiasis

- Transmission: Tick infestation
- Symptoms: High fever 40-42°C for several days, reluctance to feed, bloody urine, anaemia, jaundice, constipation, diarrhoea, emaciation, rapid drop in temperature (below 37°C and persistent)
- Preventive Measures:
 - Regular tick control is the most effective way to keep these infections in check.
 - Seek veterinary treatment if above symptoms of any of the above diseases are seen, since treatment is most effective in the initial stages. Delays may result in death.
- For control of Babesiasis, vaccinate all exotic and crossbred animals aged 3 months and above, once in its lifetime.



4. Metabolic Diseases

a. Hypocalcaemia (Milk Fever)

- Is a metabolic disorder affecting cattle, sheep and goats. Also known as hypocalcemia, occurs when
- The animal has low blood calcium levels during lactation.
- **Symptoms:** Occur within 72 hours of calving, brief period of excitement restlessness and muscular twitching, animal staggers and lies down with head turned towards the body, loss of consciousness and paralysis of hind limbs- unable to get up, loss of appetite, eyes dull and muzzle dry, tympany, no fever
- **Preventive measures and treatment:**
 - It can be prevented by sufficient providing vitamin D, five to seven days before parturition, keeping animals on a low calcium diet while not lactating and providing high doses of calcium one day before and one day after giving birth. Diets such as alfalfa hay is high in calcium. Do not feed calcium supplements in excess during late pregnancy.
 - Chances of milk fever in prone animals is reduced greatly if given 3-4 doses of oral calcium 12- 24 hours before calving to 48 hours post calving, with each dose providing 40-50 g of calcium.
 - Anionic salts like ammonium chloride and magnesium sulphate or ammonium sulphate (50- 100 g each/day) may be fed during last 3 weeks before calving.
 - If symptoms are seen, animals respond to therapy instantly. If left untreated, the animal will succumb.
 - Some animals may relapse within 24-48 hours and require further treatment.
 - An animal should ideally have a urine pH between 6.5-7 near the time of calving. Higher pH indicates increased risk of milk fever.
 - It can be treated by injecting a solution of calcium borogluconate subcutaneously or intravenously and providing a combined mineral solution





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