

JOB ROLE – DAIRY FARMER-I

Sector – Agriculture

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Class XIth



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Unit 3 : Establishing Livestock Within Accommodation

Session 1: Standard Practices for Maintaining Health of Cattle

Content

Title	Slide No.
Session Objectives	04
Introduction	05
Standard Practices for Maintaining Health of Cattle	06
Measures for effective supervision of health of cattle	07
Vaccination	08-12
Establishing suitable environmental conditions in a dairy farm	13-15
Minimizing stress in dairy animals	16-17
Transportation of dairy animals	18-32
Summary	33

Session Objectives

In this session the students will learn about the

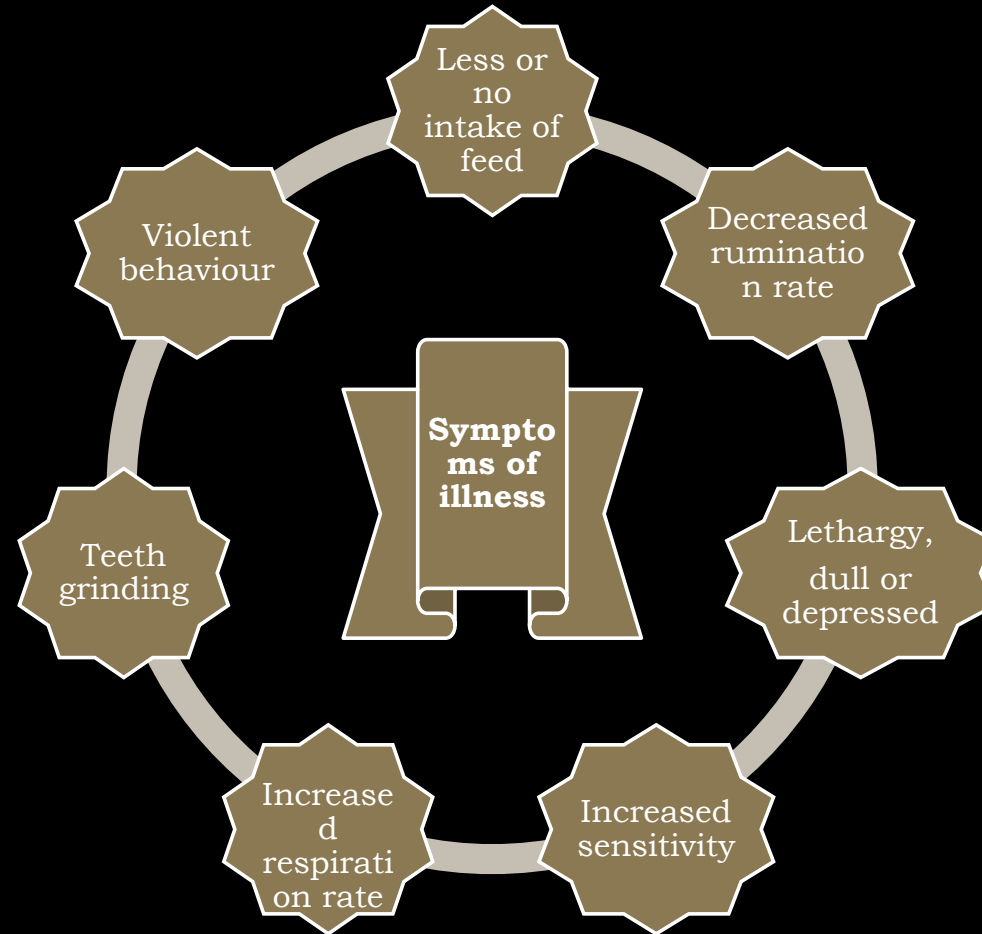
- Standard Practices for maintaining the health of cattle
- Vaccination in dairy animals
- Documentation of vaccination
- Establishing suitable environmental conditions in a dairy farm
- Minimising stress in dairy animals
- Transportation of dairy animals

Introduction

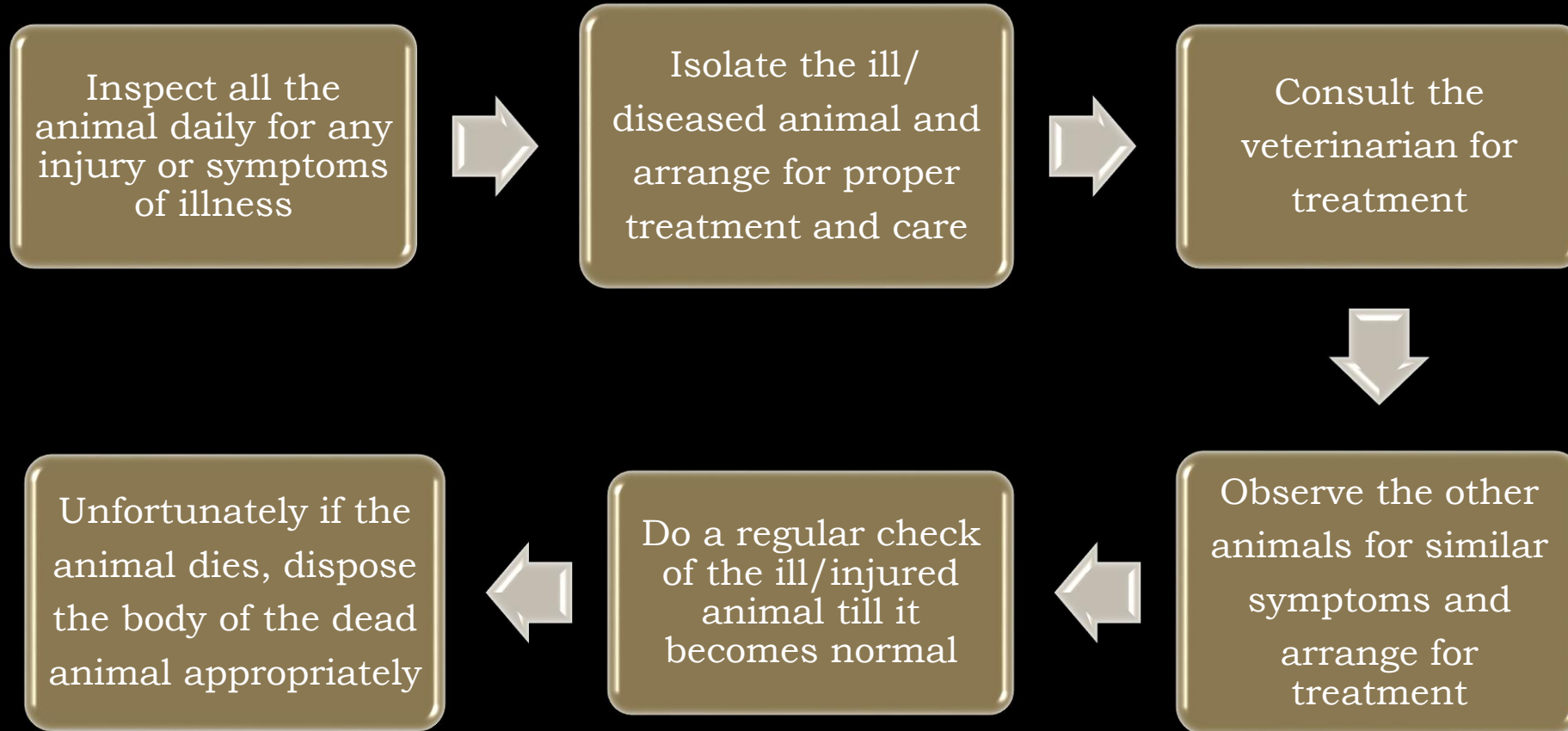
- Management of dairy animals involves various activities like feeding, milking, cleaning, etc., as per the set routine.
- As a dairy entrepreneur, one has to regularly inspect the animals to check for abnormalities and identify the problem at the earliest.
- Efficient management also includes protecting the farm workers involved in the day-to-day operations, from injuries or risks it also includes proper disposal of the large quantities of manure produced in the farm.

Standard Practices for Maintaining Health of Cattle

The farm supervisor is required to inspect and observe the animals carefully for any illness or injury, every day. The daily routine of feeding, milking and caring is followed, and any major change in the routine could affect the health and production of animals.



Measures for effective supervision of health of cattle



Vaccination

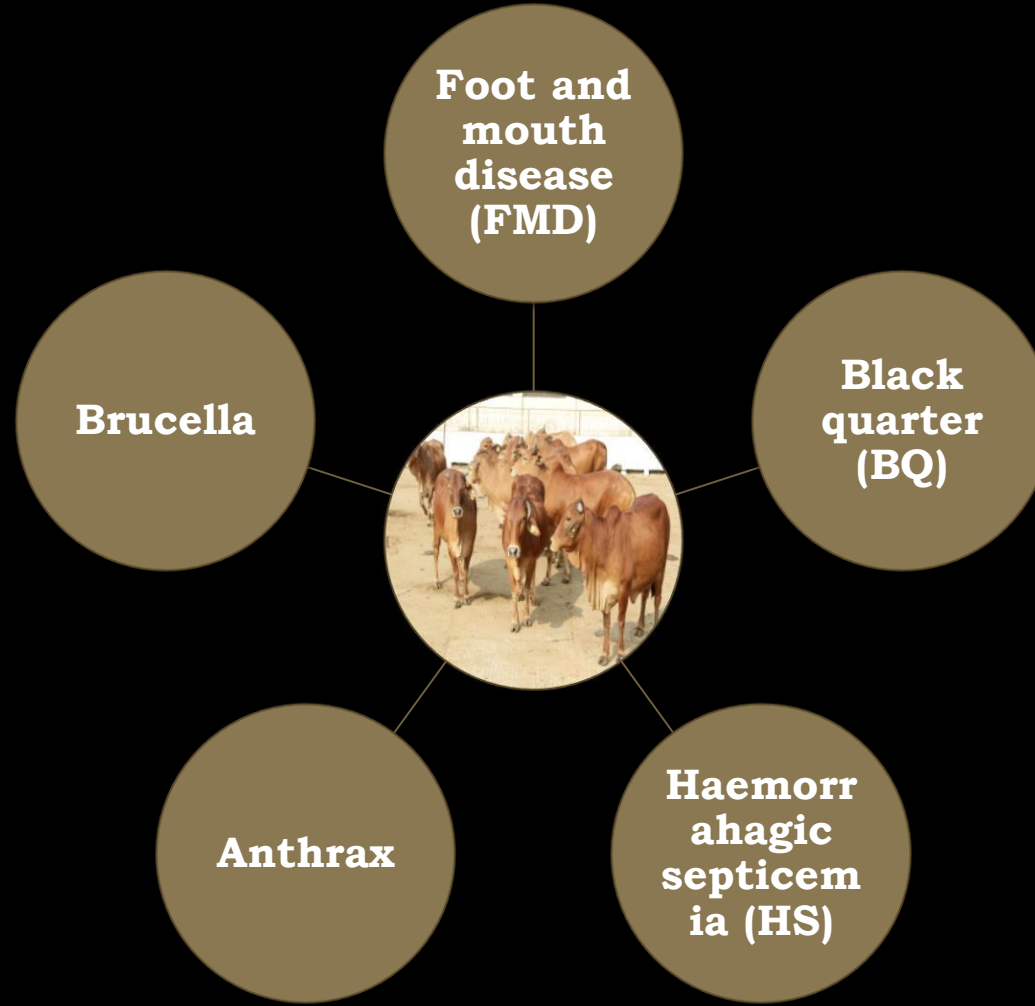
Dairy animals, just like human beings, are susceptible to various fatal diseases caused by bacteria, viruses, fungi, parasites, etc. Diseased animals can cause substantial economic losses to a dairy farm, which is why it is necessary to prevent them from diseases as much as possible.

Vaccination means the administration of a particular vaccine into the animal's body for producing immunity in the body of the animal against a specific disease.

It is an efficient and powerful method to promote the health of animals by preventing outbreak of major diseases, which have an impact on animal health and production as well as human health.

The vaccine is administered generally subcutaneously or intramuscularly, based on the standard instructions prescribed for that vaccine.

It must always be remembered that vaccines are administered only to healthy animals.



Major diseases in cattle requiring vaccination

Vaccination schedule for cattle

Vaccine	Primary vaccination	Booster	Revaccination
FMD vaccine	6 - 8 wks of age	6 months after 1 st dose	annually
HS vaccine	6 months and above	—	annually
BQ vaccine	6 months and above	—	annually
Anthrax vaccine	6 months and above	—	annually in endemic areas
Brucella vaccine	4-8 months female calf	—	—

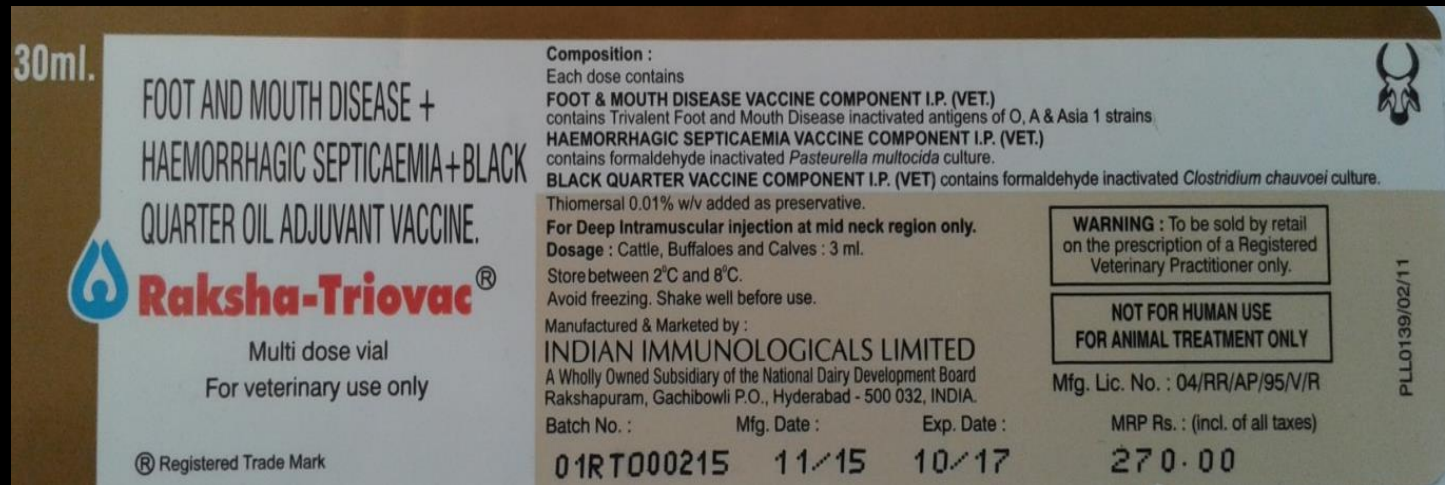
- Most of the vaccines used in farm animals are developed from live infectious organisms. Vaccines are very sensitive to temperatures variations. Proper handling and administration of vaccines is very important for its effectiveness.

Documentation of vaccination

Proper documentation of vaccination program is important for many reasons like legal proof of vaccination status especially whenever there is an outbreak of disease in that area and for monitoring adverse reactions in the animals in which vaccination has been carried out. The following information should be recorded in the vaccination record of each animal:

- a) Name of the vaccine administered, manufacturer's detail, lot or serial number, date of expiry
- b) Date of administration of vaccine
- c) Route of administration of vaccine

- The manufacturer's label can be removed from the vaccine bottle and pasted on the register or record book. It is easier to maintain such records in a computer.



A specimen of vaccine manufacturer's label showing 1) name of vaccine, 2) route of vaccination, 3) vaccination dosage, 4) optimum temperature for storage of vaccine, 5) batch number, 6) manufacturer's detail, etc.

Establishing suitable environmental conditions in a dairy farm

- Farm animals are homoeothermic which means there are little changes in their body temperature. Metabolic heat is produced in them and subsequently released to the atmosphere by means of convection, conduction and radiation which causes stress to the animals and ultimately leads to distress and diseases
- Thus, intensive livestock housing is equipped with an environmental control system to maintain animal health and welfare.
- Modifications in environment are achieved by ventilation, heaters for extreme cold conditions and cooling equipment for hot climatic conditions

Environmental conditions maintained for optimum milk production

Temperature : The favorable temperature within the animal shed is between 15°C to 27°C . Deviation in the temperature may cause significant loss in productivity and health of the cattle.

Relative Humidity: Optimum relative humidity of dairy animal house is about 40 per cent to 60 per cent. Significant variation in the relative humidity can cause stress in animals.

Ventilation : The animals feel comfortable when they are kept in a well-ventilated animal house. When the animal shed is properly ventilated, obnoxious gases produced within the animal house come out easily. It is important to ensure that animal sheds are not overcrowded.

- **Wind Velocity** : Animals feel comfortable when wind speed is about 5–8 km/hr. Planting of green belt (with trees) in areas with high wind velocity breaks the wind speed and minimizes the disturbance in the environment.
- **Optimum and natural light** : Artificial or bright lights can disturb the routine of animals and affect their health and productivity, and therefore, arrangements for optimum and natural light are necessary. Extra care is provided to weak, ill or injured, pregnant and young animals.

Minimizing stress in dairy animals

- Cattle are social animals that prefer to stay in a herd. They do not like to be isolated, and move quickly and become aggressive if mishandled and provoked.
- Cattle in stress could be dangerous to livestock handlers, and in case of rough handling, the animals could become averse to people. Thus it is very important to minimize stress in animals by their proper management.

Causes of stress in dairy animals



Transportation of dairy animals

- Transportation of livestock involves a number of operations like handling, loading and unloading
- Important parameters to consider while transporting animals are environments unfamiliar to animals, isolation, social disruption, confinement, fluctuations in environmental temperature, humidity, feed and water deprivation, etc.
- The main objective of transportation is to ensure the safety, security and comfort of the animals, while moving them efficiently to their destination.

Transportation can result in significant stress for the animals, which can be categorised as - physical (changes in temperature, humidity or noise), physiological (limited access to feed and water) and psychological (exposure to new individuals or environments).

- **Purpose of transportation :** Animals are transported for various reasons such as change of ownership, marketing, movement from drought areas to better grazing areas, treatment, exhibitions (*krishi mela*) and animal fairs.
- **Modes of transportation :** The usual modes of transportation for animals are : On foot (walking/trekking), Road, Rail, Sea, Air.

- **Loading and unloading ramps (elevators) for livestock :** Ramp is a sloping surface used to allow access from a lower level to a higher level.
- It is used to load and unload the animals in a vehicle or train. Loading and unloading ramps provide non-slippery footing to prevent animals from falling.
- On concrete ramps, stairs provide good footing. The recommended angle of the loading ramp is 20° or less.
- **Transport of livestock on foot :** Cattle can be successfully moved on foot.
- The journey of animals is planned by paying attention to the total distance to be travelled, opportunities for grazing and watering and overnight rest

- Animals walk during the cooler period of the day. If they are to be loaded in a rail wagon after moving some distance they are given sufficient time for rest and water before loading
- The maximum distance that animals can walk on foot depends on the weather, body condition, age, etc.
- Maximum trekking distances for species

Species	One day journey	More than one day	
		First day	Subsequent days
Cattle/ Buffalo	30 km	24 km	22 km
Sheep/ goats	24 km	24 km	16 km

Specification for transportation of animal by foot

Species	Maximum distance travel (km/day)	Speed (km/ hr)	Maximum hours traveling in a day	Period of rest, drinking and feeding	Temperature range (°C)	
					Max	Min
Cows	30	4	8	At every 2 hours for drinking and at every 4 hrs for feeding	12	30
Buffaloes	25	3	8	At every 2 hours for drinking and at every 4 hrs for feeding	12	30
Calves	16	2.5	6	At every 1½ hours for drinking and at every 3 hrs for feeding	15	25

Transport of livestock by road

- When it is not feasible for transporting animals on foot, they are transported by road with the help of trucks.
- The body of the truck is cleaned with a broom to maintain cleanliness and suitable bedding material is provided on the floor of the truck to make the journey comfortable to the animals.
- Sand (10–12 cm depth) or straw bedding (15 cm depth) are good bedding material.
- The trucks are also connected to the loading ramp. Partitions are made with bamboo in the truck for individual animals.
- An attendant is present all the time during the journey.

- The vehicles transporting animals are not loaded with any other merchandise
- To prevent cows and buffaloes from being frightened or injured, they must face the engine side. The animals can be placed either head-to-head or tail-to-tail on the truck.
- Feed and water must be supplied at an interval of 8 to 10 hours. The attendant accompanying the animals looks after them during the journey
- The animals must be given rest and a little exercise on the ground at an interval of 10–12 hours. They are then again loaded in the truck for the remaining journey.

Space requirement for cattle during transportation

Vehicle size (length × width) (square metre)	Floor area of the vehicle (square metre)	Number of cattle			
		Cattle weighing upto 200 kg (@1 square metre space per cattle)	Cattle weighing 200–300 kg (@1.20 square metre space per cattle)	Cattle weighing 300–400 kg (@1.40 square metre space per cattle)	Cattle weighing 400 kg (@2.0 square metre space per cattle)
6.9 × 2.4	16.56	16	14	12	8
5.6 × 2.3	12.88	12	10	8	6
4.16 × 1.9	7.904	8	6	6	4
2.9 × 1.89	5.481	5	4	4	2

Advantages of road transport

- Suitability for long distance transport
- Freedom in choice of time of movement of the animals and direct transport of the animals at the destination

Disadvantages of road transport

- The animals are exposed to extreme stress condition
- Higher chance of injury
- Higher body weight loss due to stressful condition

Transport of livestock by rail

- Transportation of animals by rail is done when very long distances are to be covered.
- The size of the wagon and the size of the cattle determine the number which can be loaded on a single wagon.
- For comfort in transportation, the wagon is loaded heavily enough so that animals stand fairly close to each other; however overcrowding is avoided
- An ordinary railway goods wagon carries ten adult cattle.

- The following points are kept into consideration while transporting cattle by train :
- At least one attendant is present in each wagon.
- Cattle are loaded parallel to the rails, facing each other.
- Cattle wagon is always positioned in the middle of the train.
- Two breast bars are provided on each side of the wagon, one at a height of 60–80 cm and the other at 100–110 cm.
- Cattle in milk are milked at least twice a day and the calves are given the required quantity of milk.
- It is always preferable to move cattle during the night.

Advantages of railway transport

- The advantages of railway transport are less stress to the animals as compared to road transport
- Ease in covering long distances in a short span of time and reduced chances of bruising and other injuries during handling.

Disadvantages of railway transport

- Adhering to the railway timetable
- Difficulty in transporting lesser number of animals.

Transport of livestock by sea

- Sea route is preferred when animals have to cover a long journey
- The animals considered to be of high value and used for breeding purposes are transported by sea route
- About 40 square feet area is required for each cattle.
- Crates of dimensions 5 feet long, 3 feet wide and 3 feet high are sometimes used for transporting animals.
- The examination of animals is done at an interval of 2 to 3 hours.

Transport of livestock by air

- Usually highly valued animals are transported by air, like race horses, poultry parent stock, etc.

Animals not suitable for transport

The conditions in which animals are not suitable for transport as follows:

1. Weak newborns, emaciated animals and animals with injuries.
2. Animals nearing the time of parturition.
3. Animals in advanced pregnancy.
4. When the pregnant cattle has approached the maximum pregnancy period allowed for

Transportation is as given below:

Animals	Maximum period of pregnancy
Cow	190-200 days
Buffalo	210- 220 days

5. Animals that have given birth during the preceding 48 hours.
6. Aged animals.
7. Unfavorable climatic conditions like very hot or cold weather or heavy rains.

Summary

- In this session you have learnt about the
 - Standard Practices for maintaining the health of cattle
 - Vaccination in dairy animals
 - Documentation of vaccination
 - Establishing suitable environmental conditions in a dairy farm
 - Minimising stress in dairy animals
 - Transportation of dairy animals

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