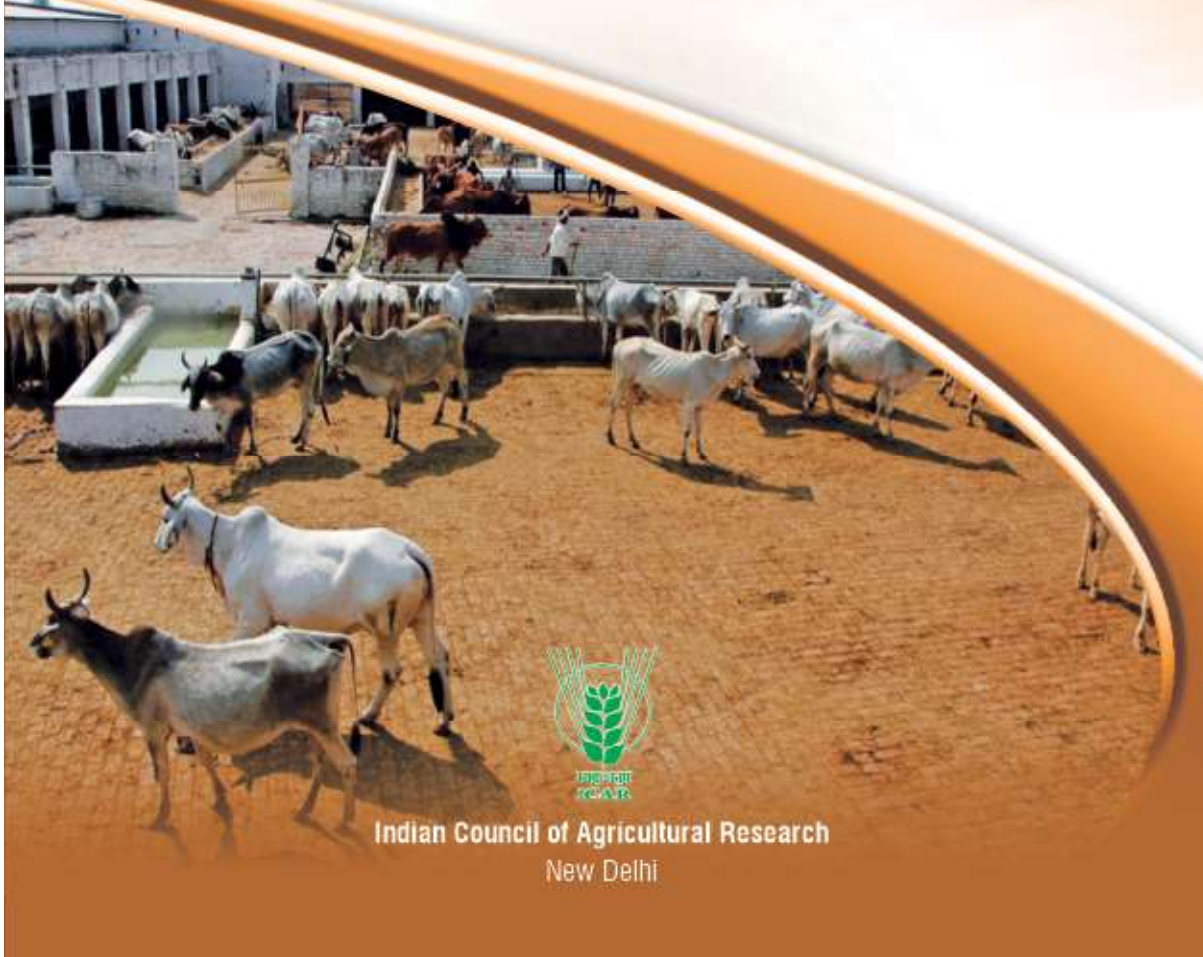


**MANUAL
ON
MANAGEMENT OF
*GAUSHALAS***



Indian Council of Agricultural Research
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Veterinary care of animals including vaccination

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A good husbandry and animal care program on a gaushala is essential to the health of the cattle. One of the foundations for animal care is to prevent or minimize pain, injury and disease. Disease is prevented by adherence to herd health, nutrition and management programs that enhance well-being. If disease is present, rapid diagnosis and treatment should be instituted. A *gaushala* maintains the health of the cattle by providing appropriate nutrition, housing, and disease prevention and detection, along with well-designed treatment programs. These programs are developed through consultation with a qualified veterinarian.

Cow herd vaccination program, including calf vaccination, is an important component of a complete herd health management program because vaccination can reduce the incidence of disease in the herd. Vaccines contain antigens of disease-causing agents, and are used to stimulate cattle's immune systems and create an immune response before significant natural exposure to disease-causing agents. It is important to understand that vaccination does not equal immunization. Many factors influence the immune response to vaccinations, including stress, vitamin and mineral balance, nutrition, and overall health of the animal being vaccinated. Proper timing, proper vaccines for the time of year and geographic area, route of administration, and dosage are part of an effective vaccination program.

Shelter and equipment management

While cattle require minimum shelter, weaned calves and cows calving need at least an open shed. Animal crates may be needed for efficient maintenance and care, used when deworming, dehorning, palpating, or vaccinating. Crate size and style will vary based on needs and financial plan. The animals need to be protected during inclement weather, to avoid stress and subsequently precipitation of diseases.

Proper feeding and watering equipment is a must. A *gaushala* may need feed troughs for specific feed and supplements and always an adequate, reliable water source is needed.

Feed management

Cattle require a balance of protein, energy, water, minerals, and vitamins for optimal health and production, called a ration. Feed is separated into two classes:

- a. **Roughages**—Feeds high in fiber and low in total digestible nutrients, such as grazable pasture, alfalfa, grass hay, and straws.
- b. **Concentrates**—Feeds low in fiber and high in digestible nutrients, such as grains, cottonseed meal, wheat bran, and soybean meal.

Animals should have access to feed and water on a daily basis, in a consistent manner, on a regular schedule, and according to their specific requirements. Rations should provide the required nutrients for maintenance, growth, lactation, and pregnancy based on an animal's life stage, as found in references such as the National Research Council, 2001.

Wellness care and herd management

Veterinary wellness care and planning is the easiest and cheapest method of disease control. The following simple steps are recommended to begin wellness care regime:

Dehorn calves of horned breeds—Dehorning or disbudding is performed to avoid injury to herdmates and personnel, reduce feeder space requirements, and increase handling ease. Dehorning should be done at the earliest age practicable. Disbudding is the preferred method of dehorning calves.

Castrate male calves—Castration of young male calves is necessary as it reduces the chance of unplanned mating, venereal disease, and aggression against other animals and animal caretakers. Although various techniques are available, surgical castration prior to weaning is recommended. Castration should generally be done at the earliest age practicable, and certainly at less than four months of age.

Wean calves—Separating calves completely from their mothers promotes a cessation of milk production in cows and restores the heat cycle.

For cow health management, the most effective routine procedures which can be used are:

- Regular vaccination

- Screening of cows against diseases
- Promoting resistance in animals that might be exposed to potentially infectious agents through good nutrition
- Regular deworming
- Control of external and internal parasites
- Maintenance of health, production and reproduction records of all animals
- Regular examination of cows with breeding or calving problems
- Adoption of bio-security measures

Practices for minimizing disease incidence

- Provide an appropriate housing facility with adequate space for all animals.
- Avoid temperature extremes and fluctuations to keep it within animal's comfort zones.
- Practice good sanitation at all times. Manure should be removed as frequently as practical.
- New animals coming into the *gaushala* should be checked and vaccinated against endemic diseases.
- Isolate all new animals for a sufficient period (minimum 21 days) before allowing full entry into the *gaushala*
- Ensure that animals always have an adequate quantity of feed and fodder, appropriate to age and physiological stage.
- Provide ample, potable water, with space for at least 10% of housed cattle to drink at any one time.
- Protect feed and water from fecal and other environmental contamination.
- Do not mix different age groups of animals.
- Daily observe all animals for abnormal behaviour or other signs of disease.
- Begin treatment quickly whenever diseases are detected.

Cattle diseases prevalent in India

The following cattle diseases have been identified as important endemic diseases in India. Therefore a regular vaccination programme, parasite control programme and prophylactic measures are important against these diseases.

- Foot and mouth disease
- Haemorrhagic septicaemia
- Black quarter

- Anthrax
- Enterotoxaemia
- Cow pox
- Brucellosis
- Rabies
- Parasitic diseases (fascioliasis, amphistomiasis, schistosomiasis)
- Protozoan diseases (babesiosis, theileriosis, anaplasmosis, trypanosomiasis, coccidiosis)
- Tuberculosis
- Mange infestations
- Mastitis

Signs and symptoms of common cattle diseases

- Abnormal gait and posture of the animal
- Loss of appetite
- Stoppage of rumination
- Rough dry skin
- Dry muzzle and nostrils with sunken eyes
- Variations in body temperature
- Variation in pulse and respiration rate
- Incidence of diarrhoea or constipation
- Abnormal colour and odour of urine
- Reproductive problems
- Loss in body weight
- Presence of external and internal parasites
- Respiratory problems and coughing etc.

Vaccination protocol

A standard vaccination schedule appropriate for cows in India is given below. All these vaccines are commercially available.

Disease	Vaccine	Dose	Immunity	Time
Foot & mouth diseases (FMD)	Polyvalent FMD vaccine	3 ml. S/C	1 Year	1st vaccination at 3 months of age. Repeat as per vaccine used.
Hemorrhagic septicemia (HS)	HS vaccine	5 ml S/C	6 month to 1 Year	1st vaccination at 6 months of age. Repeat yearly in May-June
Black quarter (BQ)	BQ vaccine	5 ml S/C	6 month to 1 Year	1st vaccination at 6 months of age. Repeat yearly in May-June
Anthrax	Anthrax spore vaccine	1 ml S/C	1 Year	1st vaccination at 6 months of age. Repeat yearly in May-June
Brucella	S-19 vaccine	5 ml S/C	2 Years	Female cattle calf aged 4-8 months only
Rabies	Rabies post bite vaccine	1 ml S/C	1 Year	0, 3, 7, 14, 28 and 90 days (post bite vaccination)

Vaccination against rabies

For rabies, post exposure vaccination is recommended at 0, 3, 7, 14, 28 and 90 days. For example, if it is suspected that a cow has been bitten by a dog, this vaccination course can be started as a preventive approach. If a cow is bitten by a dog that is confirmed to have rabies (e.g. by physical symptoms), the post exposure vaccine course should be started immediately.

Parasite control

- External parasites can be controlled by using ectoparasiticides in the form of spray and injections. Protozoan diseases mostly occur during summer or rainy season when ticks have higher activity. Therefore, control of ectoparasites during that season is important.
- Young animals (up to 18 months) should be dewormed more frequently (at least 4 times in a year and if necessary monthly) than adult animals depending on the climate and management.
- Routine use of the same anthelmintic drugs should be avoided to prevent build-up of resistance.
- Correct dosage should be used to prevent formation of resistance.

Deworming schedule

- Deworming should be started from the first week of calf.
- A single oral dose of 10 g piperazine adepate/ albendazole is recommended for the calves preferably in the first week of life to control neonatal ascariasis.
- Deworming should be done every month for first six months, thereafter once in three months.
- The deworming drugs and dose should be consulted with qualified veterinary doctor time to time.

Disposal of carcasses

Dead animals should be disposed immediately after death. The dead animals should never be thrown into stream or river and should not remain long in the shed as biting insects and rodents can spread the disease. The carcass should never be opened unless approved by a veterinarian. The material like dung and bedding should be removed with much precaution otherwise there are chances of infection. The dead animal is either buried or burned. Deep burial is the most common method practiced while burning is the most sanitary method to dispose the carcass in the most effective manner.

Mastitis control

It is essential to regularly check the udders of milking cow for any injury, inflammation, pain, redness or mastitis to prevent the spread of mastitis in the herd. Strip-cup test and modified California mastitis test (MCMT) is used widely in field condition for early detection and prompt treatment. Teat dipping before and after milking, drying up therapy using suitable antibiotics and other hygienic practices while milking allows lesser incidence of udder problems.

Reproductive health

Problems of the reproductive tract with cloudy, blood tinge, foul odor mucous discharge following abortion or calving should be carefully examined and treated with antibiotics or hormonal therapy. In case of problems of retained placenta more than 24-72 hours of calving, manual removal of the placenta is not advised.

Protocol for calf care

- Have a comprehensive herd health program in place.
- At the time of calving, provide dry, sanitary maternity pens or paddocks.
- Provide an adequate volume of high-quality colostrum soon after birth.

- Feed a high-quality milk replacer or pasteurized milk to calves; do not use milk from cows that have been treated with antibiotics.
- If antibiotics are used for calves to be marketed, administer antibiotics with short or no withdrawal periods.
- Dip navels in disinfectant as soon as possible after birth.
- Avoid stressful procedures during weaning.
- Transport calves only if they are able to walk unassisted, are not wobbly, and have a dry navel.
- Transport calves safely and comfortably in appropriate vehicles with adequate ventilation, bedding, and protection; do not pull calves by limbs, ears, tails, or necks; do not throw calves onto trucks.
- Calves should spend as short a time as possible in the journey. Ideally, they should move directly from the origin to their final destination.
- Management should be prepared (and calf caretakers trained) for :
 - a) Handling cows having difficulties in calving.
 - b) Observing time elapsed after calving (e.g., important for colostrum management) and time elapsed between calvings in any calving pen.
 - c) Guaranteeing that calves have continual access to a source of freshwater or are watered at least twice a day or as necessary to maintain proper hydration.
 - d) Guaranteeing that calves receive high-quality colostrum or colostrum replacer in a timely manner (identify the person responsible for checking colostrum quality, feeding colostrum, and saving excess colostrum).
 - e) Guaranteeing that calves are given a palatable, high-quality starter ration offered within a week after birth.
 - f) Monitoring calves at least twice daily and recording their health status.
 - g) Maintaining daily records of the calves' health and any medication used (dosage, duration of treatment, route of administration, compatibility of medications, and withdrawal times) under supervision of a qualified veterinarian.
 - h) Handling calves gently and firmly.

Biosecurity

Biosecurity is an important tool for maintaining animal health. Biosecurity procedures are meant to control and avoid the introduction of new infectious

agents into the herd as well as to keep the spread of any diseases within the *gaushala* at a minimum level.

Protocol for ensuring biosecurity

- The *gaushala* should be enclosed by wall, fences or natural vegetation to limit the entry of disease carrying animals.
- Strictly control the entry of people and maintain an appropriate hygiene barrier around the *gaushala*, e.g. foot baths at entry/exit points, and clean clothes/overalls and boots/shoes for visitors.
- Strictly maintain a hygienic environment, for example by disinfecting vehicles and equipment as they enter the farm if they have been exposed to other farm animals, and when they leave.
- New animals should be checked for tuberculosis, Johne's disease and brucellosis.
- Isolate all new animals for a sufficient period (minimum 30 days) before allowing full entry into the herd and contact with other animals.
- Animals from different physiological stages or ages should be kept in separate paddocks or units and should have separate management strategies.
- Dead animals should be removed immediately and disposed of in a sanitary manner to avoid the risk of spreading infection.