

Vaccination: An easiest and cheapest way to prevent common diseases of livestock

Vivek Pratap singh¹, A. K Singh¹ and R. P. Singh²

SMS-Animal Science¹, SMS-Agronomy¹ Mahayogi Gorakhnath Krishi Vigyan Kendra, Gorakhpur, U. P. ²Senior Scientist and Head, KVK, West Champaran-II

Introduction

Animal health plays an important role in harnessing the expected production potential of dairy animals. A diseased animal cannot perform to the expected level. Timely intervention is therefore pivotal in reducing the economic losses due to diseases.

Vaccination is a simple, safe, and effective way of protecting livestock against harmful diseases, before they come into contact with them. It uses body's natural defences to build resistance to specific infections and makes immune system stronger. Most vaccines are given by an injection, but some are given orally (by mouth) or sprayed into the nose. Vaccines are widely applied in all the various livestock producing systems. Farm animals are highly susceptible to diseases caused by bacteria, viruses, fungi and parasites. Therefore, it is important to look out for the animals and ensure that they are protected from any threats of diseases. Animal health is one of the most important factors in farming community especially those who are keeping livestock. Vaccination helps provide for sustainable and economic stability for farmers and the communities they serve (Kaasschieter et al., 1992). Vaccination is vital in promoting both animal health and animal welfare (Morton, 2007). Vaccines contain an agent that resembles a disease-causing microorganism and is often made from weakened or killed forms of the microbe, its toxins and one of its surface proteins. Vaccinating animals helps in stimulating an immune response without causing the disease itself. This creates early exposure to disease-causing organisms, where the animals' immune system is able to recall the infectious agent to which the animal is vaccinated. Our country is endemic to many diseases that cause severe economic losses due to drastic reduction in the production capacity. Some of the diseases are even highly fatal. Fortunately, vaccines are available for most of these diseases in our country and can be easily controlled if timely vaccination is carried out in a mass scale, covering a large proportion of the susceptible population.



Different types of vaccines

1. Live (attenuated) vaccines.
2. Killed (inactivated) vaccines.
3. Biosynthetic, genetically engineered vaccines.

An effective vaccine needs to be highly “antigenic”: it must strongly stimulate the immune system to respond rapidly in the correct way. Vaccines are used to protect animals from a wide range of diseases that affects the production, fertility and economic losses to the farmers. This is done by stimulating a defensive environment and preparing the animal to resist the impact of a pathogenic microorganism it may encounter later in life. They are efficient in preventing the transmission and spread of contagious animal diseases (zoonotic diseases) from animals to people and from animal to animal. A vaccine is a cost-effective method used in preventing animal diseases; they are generally safe, efficient and are associated with few severe side effects (Roth, 2011).

Diseases that can be easily prevented by resorting to timely and regular vaccination

Sr. No	Name of Disease	Age at first dose	Booster dose	Subsequent dose
1	Foot and Mouth Disease (FMD)	4 months and above	1 month after first dose	Six monthly
2	Haemorrhagic Septicaemia (HS)	6 months and above	-	Annually in endemic areas.
3	Black Quarter (BQ)	6 months and above	-	Annually in endemic areas.
4	Brucellosis	4-8 months of age (Only female calves)	-	Once in a lifetime
5	Theileriosis	3 months of age and above	-	Once in a lifetime. Only required for crossbred and exotic cattle.
6	Anthrax	4 months and above	-	Annually in endemic areas.
7	IBR	3 months and above	1 month after first dose	Six monthly (vaccine presently not produced in India)
8	Rabies (Post bite therapy only)	Immediately after suspected bite	4th day	7,14,28 and 90 (optional) days after first dose.

Precautions taken during vaccination

- Animals should be in good health at the time of vaccination.

- Don't vaccinate animals, in poor health, poor body condition or stressed because the vaccine will not be effective.
- The cold chain of the vaccines wherever prescribed should be maintained till the time of administration to the animal.
- The manufacturers' instruction on the route and dosage should be strictly followed.
- A minimum vaccination coverage of 80% of population is required for proper control of the disease.
- It is beneficial to deworm the animals 2-3 weeks before vaccination is carried out for better immune response.
- Vaccination should be carried out at least a month prior to the likely occurrence of the disease.
- Vaccination of animals in advanced pregnancy may be avoided even though in most cases nothing untoward may happen

Common reasons for failure of vaccination

- Lack of maintenance of cold chain from the time of manufacture till vaccination.
- Poor immune response in weak and improperly fed animals.
- Lack of herd immunity due to only a few animals being vaccinated.
- Poor quality of vaccine - Quality will deteriorate if repeatedly thawed and cooled.
- Low efficiency or ineffective vaccine – May occur in case of strain variation (eg. FMD).

References

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