

# Health Management of New Born Calf

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## Introduction

In many cases farmers focus more on managing the milking dairy cattle and give little attention to calf health. Calf health, as reflected in morbidity and mortality, is a consistent and major issue facing the dairy farmer. Data on mortality pattern in dairy animals under organized herd management conditions at Karnal clearly show that dairy calf mortality up to 2 months of age accounted for a major share (50–60% or higher) in different breed groups, representing a significant economic impact on the dairy farm economy (Prasad et.al. 2004). Health management planning in livestock farming is one of the most important aspects for optimum and uninterrupted production. Epidemiological mapping of the area where the farm is situated is helpful in selecting and adopting preventive measures against the prevalent diseases. A tremendous amount of emphasis has been placed on the nutrition and management of the cow herd to improve reproduction and profitability. However, little emphasis has been directed toward the management of the calf health programme. The impact of calf on the profitability of the operation is far greater than any individual cow. Therefore, it is imperative that consideration for management, nutrition and health of calf receives far more emphasis than any cow in the herd. In this article we will focus on health management aspects of calf which will help the farmers as they affect productivity of farms.

## Colostrum management

Colostrum management is the single most important management factor in determining calf health and survival. A successful colostrum management program requires producers to consistently provide calves with a sufficient volume of clean, high-quality colostrum within the first few hours of life (Godden, 2008). Colostrum feeding is the means by which newborn calves acquire passive immunity to infectious agents. There is evidence that immunoglobulins initially absorbed from colostrum are re-secreted into the intestine by crypt cells. These immunoglobulins help to reduce the incidence and severity of many infections such as *E. coli*, rotavirus and cryptosporidium. The ability of the newborn calf to absorb colostrum antibodies is limited to the first few hours of life. In most cases, natural suckling from the dam is the best method for calves to obtain optimum passive immune protection, but in some cases intervention and hand feeding are indicated (Besser and Gay 1994). Colostrum is made by the mother for about 3 to 7 days after it gives birth and is the calf's primary source of nutrition and fluids. It also provides essential antibodies that help the calf immediately fight off infectious diseases and nutritional deficiencies. Continue feeding colostrum to the newborn through the first 3 days if colostrum is available. In addition to colostrum fed at birth, calves need milk for the first 3 to 4 weeks of life. After that, they can digest vegetable starches and sugars.

## Calf-dam health relationship

Increased survivability of calves is very much dependent on mothering instincts of dam which is characterized by stimulating the calf to stand and stimulate suckling behavior. These two critical activities generate heat and allow the calf to obtain nutrition and immunological support against disease. Raising a calf as a orphaned in dairy industries requires to adapt the nursing behaviour of dam by the dairy farmers in more natural way as the dam would play to provide the same mothering activity. These are rubbing the calf, lifting it to stand, encouraging it to walk about, providing colostrum via nipple feeder, or, if no suckle is elicited after a couple of hours, providing colostrum via esophageal intubation.

More emphasis should be given to the calves which are born with any degree of dystocia or from an ill dam or premature at birth. Dystocia is one of the leading causes of calf mortality between birth and weaning in cattle. An understanding of the effects of parturition and dystocia on perinatal calf viability is paramount for the development of breeding and calving programs that will minimize calf losses (Rice 1994). Early recognition of the problems and treatment favour the likelihood of survival and reasonably good health of calves. Such calves can be promptly dried and warmed, provided adequate shelter, stimulated to move about and suckle, and provided colostrum early and for a prolonged duration. Additional treatments to circumvent hypoxemia and acidosis would include nasal insufflations of oxygen and intravenous fluid therapy. Hypoglycemia can be easily monitored and managed with intravenous supplementation.

**Table I: Important monitoring points to evaluate normal and abnormal calves after birth.**

Monitoring points	Normal calf	Abnormal calf	Suggested Measures
<b>Vigor of Calf</b>	Make efforts toward standing within minutes after birth	Limp and depressed	Assist the calf to stand
<b>Time to stand</b>	Stand in less than one hour	Take more than hours to stand	Assist the calf to stand
<b>Mothering attention</b>	Calf receive good mothering attention	Calf doesn't receive good mothering attention	-
<b>Body temperature</b>	At the range of 101-	Below 101 0 F	Provide blanket and

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<b>maintenance</b>	101.5 0 F		heating lamp to the abnormal calf
<b>Suckling</b>	Suckling the dam within two hours of birth and have an active suckle reflex	Having inactive suckle reflex	Strip the dam and nipple feed the calf.

### **Key management practices for raising a healthy calf**

#### ❖ **Health of the dam**

Nutrition and overall vitamin and trace mineral status in the pregnant dam has many effects on the health of the newborn calf and improvements must be considered to reduce the high incidence of morbidity and mortality. Deficiencies and imbalances of protein, energy, and certain micronutrients may manifest with neonatal weakness and physiological derangement without readily apparent compromise of the dam

#### ❖ **Cleanliness of the calf's surroundings and feeding utensils**

Cleanliness at calving and sanitation of the calf's environment, including feeding utensils is also essential to raising healthy calves. Sick calves should be fed and worked with last to reduce the chance of pathogen transfer to healthy calves. By reducing bacteria in the calf's surroundings, the risk of disease will be decreased.

### **Infectious calf disease**

The three most important diseases causing sickness and death of young calves are diarrhea, pneumonia, and septicemia.

Infectious agents are important factors in the development of calf diarrhoea, many of them (e.g. corona- and rotavirus and Cryptosporidium) are often present in healthy animals and their environment without causing overt disease. Other infectious agents (e.g. enterotoxigenic E. coli, Salmonella spp.) are usually absent but, when introduced to the environment, tend to cause an outbreak of diarrhoea. Scours produces substantial fluid and electrolyte loss as the primary problem, leading to dehydration and acid-base imbalance, which are life-threatening when severe. Early identification and use of electrolytes and fluid therapy are generally most beneficial treatments to relieve dehydration occurring with diarrhea. There are numerous bacteria, viruses, and protozoa often associated with diarrhea in calves.

It is often suggested that the viral and mycoplasmal agents are the primary infections and the bacterial agents cause a secondary infection in an animal whose defences have been weakened by the first infection. The most common viral agents isolated from pneumonia cases are respiratory syncytial virus (RSV), parainfluenza III virus (PI3) and infectious bovine rhinotracheitis virus (IBR), the main environmental factor predisposing calves to respiratory disease is poor ventilation in calf housing. Cold, humid conditions, sudden changes in air temperature, stress due to different causes and change in the environment have also been associated with outbreaks of pneumonia in young calves. Like diarrhea, usually more than one pathogen is involved. Antibiotics are often needed but usually provide little benefit to restoring productive life of the animal. Because of the significant impact, early identification and treatment are essential.

Septicemia occurs when a pathogen or its toxins are present in the calf's blood. Potent gram-negative bacteria, often E. coli or Salmonella are common causes. Septicemia often results when the calf is still in the mothers' uterus, or during or immediately after birth. Blood from its' sick mother or infected placenta, the calf's navel, umbilicus, mouth, nose, or wound are usually the source of infection. Chance for the calf's survival is usually poor. Laboratory findings that suggest septicemia include minimal acid base disturbance associated with severe systemic weakness or depression, moderate to severe hyperfibrinogenemia, prominent neutrophilia or neutropenia. Inadequate colostrum increases the risk of Septicemia.

### **Important points to remember at the birth of calf:**

- ❖ The Umbilical cord should be tied about 2-5 cms away from the body and cut 1cm below the ligature and apply Tr. Iodine.
- ❖ Remove any mucous or phlegm from those nose and mouth immediately after birth
- ❖ Provide artificial respiration by compression and relaxing the chest with hands when the cow does not lick or in cold climate, rub and dry the calf with a dry cloth or gunny bag.
- ❖ Keep the stall very clean and dry in condition. Remove the wet bedding from the pen and record the weight of the calf
- ❖ The cow's udder and teats should be washed with clean water and make it dry.
- ❖ Allow the calf to suckle the first milk of the mother i.e. Colostrum.
- ❖ The calf will be standing and attempts to nurse within one hour otherwise help weak calves to stands.

### **References :**

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