

## **INFECTIOUS ABORTION IN DAIRY CATTLE AND VACCINES IN USE FOR PREVENTION AND CONTROL**

**Subha Ganguly\***

Faculty of Fishery Science, West Bengal University of Animal and Fishery Sciences, 5,  
Budherhat Road, P.O. Panchasayar, Chakgaria, Kolkata - 700 094, WB, India.

Article Received on  
17 October 2014,

Revised on 10 Nov 2014,  
Accepted on 04 Dec 2014

### **\*Correspondence for**

#### **Author**

**Dr. Subha Ganguly**

Faculty of Fishery  
Science, West Bengal  
University of Animal and  
Fishery Sciences, 5,  
Budherhat Road, P.O.  
Panchasayar, Chakgaria,  
Kolkata - 700 094, WB,  
India.

### **ABSTRACT**

The diagnosis of abortions often presents a challenge to the herd owner and the herd veterinarian. Although a gradual increase in the abortion rate in a herd may be noted over a period of many years, a sudden and dramatic increase is more commonly seen. For this reason, prompt and thorough action is required when abortions do occur. Well kept records will often be of benefit during the investigation of abortion problems.

**KEYWORDS:** Cattle, Infectious abortion

### **INTRODUCTION**

The infectious agents represent the most commonly diagnosed cause of abortions in many laboratories. These etiologies are perhaps the most frequently thought of cause of bovine abortion <sup>[1]</sup>.

### **Etiological agents and causative factors <sup>[2-5]</sup>**

Infectious Bovine Rhinotracheitis virus (IBR) is a serious contagious herpes virus disease of cattle which remains the most commonly diagnosed viral cause of abortions in cattle. Abortions most commonly occur from 4 months to term, and may occur weeks after the disease has gone through the herd. The use of effective IBR vaccines should be a routine part of a herd disease prevention program. Bovine Viral Diarrhea virus (BVD) can cause a whole range of disease syndromes in cows. When the virus circulates in the cow, it is able to reach the growing fetus through the placenta. Generally if a calf is exposed in the uterus during the last trimester, the virus will have no effect on the calf, except that it will be born with antibodies to BVD in its blood. Occasionally a late-gestation abortion may result from a BVD

virus infection. While immunity in the cow (by exposure or vaccination) should help to protect the developing fetus, the protection offered is not 100% since there are different strains of BVD virus and only a few virus particles need to get to the fetus to cause an infection. If a cow not immune is exposed to the BVD virus in the first trimester, an early embryonic death or abortion may occur, and if the calf is not expelled from the uterus, it may become mummified. However, if the calf is exposed to the BVD virus between 42 and 125 days of gestation, and if it does not die, it may be born as a "persistently infected" calf. During the second 3 months of gestation, an infection may result in an abortion, or a calf which will be born with birth defects.

The use of an effective BVD vaccine should be a routine part of a herd disease prevention program. A cow can also abort if she develops an infectious condition that does not directly affect the fetus. Some recent research from the University of Florida has shown that cows with clinical mastitis were almost 2 times as likely to abort as cows that had not experienced any clinical mastitis. An acute case of coliform mastitis caused by the *Escherichia coli* (*E. coli*) bacteria can cause a massive release of endotoxins into the udder and bloodstream of the cow. This endotoxin may result in the release of prostaglandins or other hormones in the cow that can in turn result in the occurrence of an abortion. This endotoxin is largely responsible for the clinical signs observed, such as the depressed attitude, the lack of rumen motility, and the high temperature.

Vaccination with modified live vaccines during pregnancy can also cause cows to abort. Modified live vaccines contain live viruses or bacteria that are 'altered' to prevent them from causing clinical disease while still stimulating the immune system. It appears that this is very occasionally observed in herds that are vaccinating more than twice a year. In these situations the vaccine itself may not be causing the abortion, but the cows reaction to the frequent vaccination. Similarly, various veterinarians have observed side-effects of administering too many "gram-negative" bacterial vaccines (eg. *E. coli*, *Salmonella*) at one time.

## CONCLUSION

However, there is clinical evidence that using these vaccines in pregnant animals can cause abortions and vaccine manufacturers do not recommend that they be used in this fashion. Recently there has been some discussion about abortions occurring after vaccination with *Leptospira* vaccines.

**REFERENCES**

1. Ganguly S. An overview on various reported causes of abortion and still birth in dairy cattle. World Journal of Biology and Medical Sciences. 2015a; January - March 2015; 2(1): xx-xx. In press.
2. Ganguly S. Bacteria responsible for causing abortions and pregnancy loss in cow and vaccines employed to control such incidences: A Review. Indian Journal of Scientific Research & Technology. 2015b; January - February 2015; 3(1): xx-xx. In press.
3. Howard JL, Smith RA (Eds). Current Veterinary Therapy 4: Food Animal Practice, 1999.
4. Kirkbride CA (Ed). Laboratory Diagnosis of Livestock Abortion. 1990; 3rd Edition. Iowa State University Press, Ames, IA.
5. Youngquist R.S. (Ed.) Current Therapy in Large Animal Theriogenology. W.B. Saunders Co., Philadelphia, PA, 1997; 335–340.