

VACCINATION: AN IMPORTANT PART OF EARLY CALF HEALTH

Recent research has clearly demonstrated early calf management and health has a profound effect on how calves perform as older animals.

Mothers do not directly pass immunity to their offspring during pregnancy, so it is important calves be protected early in life to have the healthiest start possible. To achieve this, colostrum is king. *The Code of Practice for the Care and Handling of Dairy Cattle* provides clear guidelines for achieving excellent colostrum management, which includes feeding calves four litres of clean, high-quality colostrum within two hours after calving. This is important to ensure calves get off to the right start. Other important components of calf health management include a clean, dry and comfortable environment;



adequate nutrition; excellent ventilation; and, last but not least, vaccination.

“Every farm is a different environment, each with a unique set of disease challenges. It is important for producers to consult with their veterinarian to set up a vaccine protocol that works for their farm,” says Dr. Dan Shock, manager of veterinary services – cattle with Zoetis. “The general goal is to protect the calf from viruses and bacteria that cause pneumonia.”

The major viral players involved in respiratory disease are infectious bovine rhinotracheitis (IBR), bovine respiratory syncytial virus (BRSV), and parainfluenza-3 virus. Although the calf’s immune system is developed and responsive to these foreign invaders, it is still immature and not considered fully functional until several months of age. This is why immunity from the mother by feeding

colostrum in the first hours after birth is absolutely critical.

Although antibodies from colostrum are essential for calf health, they make vaccinating young calves a challenge since these antibodies can interfere with the calf’s own immune response to the vaccine. Until recently, studies looking into vaccinating young calves have generated mixed results (Windeyer et al., 2012). A real game-changer for calf vaccination has been the intranasal vaccine Inforce 3.

“A recent study conducted by researchers at the Western College of Veterinary Medicine found that Inforce 3 offered significant protection against infection, even in the presence of high maternal antibodies in the calf,” says Shock.

Traditional vaccines have relied on the systemic immune system to generate immunity. Inforce 3 is different since it targets only the local immune system of the calf’s upper respiratory tract. “By stimulating local production of antibodies through intranasal vaccination, we can intercept invading viruses and prevent them from gaining access to the calf’s system and causing disease. The goal is to stop these viruses in their tracks before they can do any more damage,” explains Shock. “In the case of Inforce 3, vaccination is not blocked from maternal antibodies so we don’t have to worry about interference from colostrum. The vaccine can be given at a very young age, and we can be confident that it is clinically effective.”

In addition, recent field research at the University of Guelph has shown vaccination with Inforce 3 significantly reduces lung damage in calves versus unvaccinated animals (Ollivett, 2014).

“When deciding to vaccinate a calf, I always ask myself two important questions. First, ‘does the vaccine work in the face of maternal antibodies?’ and second, ‘does it work in the field?’ With Inforce 3 the answer to both is absolutely yes,” says Shock.

In addition to colostrum management and following vaccination protocols, two other essential components to good calf health are:

PROPER NUTRITION

It is important that calves receive colostrum and are given enough milk in the first few weeks of life until they are properly adapted to solid feeds. The immune system is one of the biggest draws of energy in any animal, and an underfed calf will struggle with growth and proper immune function. Shock advises producers to consult with their veterinarian and nutritionist to ensure their calves are receiving enough nutrition to attain desired growth rates, especially when the temperature starts to drop.

CLEAN, DRY ENVIRONMENT

A calf should be housed in a clean, dry and warm environment. Cold and wet calves shiver more, and shivering diverts energy away from growth toward heat production instead. In addition, a cold and wet environment will place more stress on the calf, further hindering the growth and development of her immune system, thereby reducing her ability to fight off infection.

As always, your veterinarian and nutritionist are important resources when devising a calf health management program that works for you and your calves.

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References: Ellis, J. A., S. P. Gow, S. Mahan, and R. Leyh. 2013. Duration of immunity to experimental infection with bovine respiratory syncytial virus following intranasal vaccination of young passively immune calves. *Journal of the American Veterinary Medical Association* 243(11):1602-1608.

Ollivett, T. L. 2014. *Understanding the Diagnosis and Risk Factors for Respiratory Disease in Dairy Calves*. Department of Population Medicine. PhD Thesis. University of Guelph, Guelph, Ontario, Canada.

Windeyer, M. C., K. E. Leslie, S. M. Godden, D. C. Hodgins, K. D. Lissemore, and S. J. LeBlanc. 2012. The effects of viral vaccination of dairy heifer calves on the incidence of respiratory disease, mortality, and growth. *J Dairy Sci* 95(11):6731-6739.



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