

# *Killed Viral Vaccine Trial in Baby Calves*

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Respiratory disease in dairy calves remains a significant cause of morbidity and mortality in the first months of life. The effects of juvenile pneumonia are life-long and include decreased rate of gain, decreased milk production, and decreased survival in the herd. These effects are in addition to the direct cost of diagnosing and treating pneumonia in calves. There are many factors that can affect the incidence and outcome of pneumonia events in calves including housing, environment, weather, diagnostic skill, therapeutic success, and passive transfer of immunity from the dam.

Maximizing passive transfer of antibodies from the dam is a significant management tool in the reduction of respiratory disease in dairy calves. Studies have shown that calves with low IgG have a two times greater risk of pneumonia when compared to calves with higher serum IgG levels. The duration of passive immunity appears to be approximately 3-4 months; however, statistically the risks of failure of passive transfer are evident as long as six months. Many Colorado dairies use an annual modified-live viral vaccine administered approximately 30 days after freshening to stimulate immunity to viral respiratory and reproductive disease in their cows and, subsequently, their calves. Killed viral vaccines offer the advantage of administration during pregnancy with a reduced risk of abortion due to abortogenic components of the vaccine. The administration of a vaccine prior to parturition is believed to increase the titers of the cows at the time of calving and potentially increase the amount of antibody available for passage to the calf via colostrum.

An investigation of the effects of killed viral vaccines in dairies was conducted by researchers at the CSU Veterinary Teaching Hospital. The study looked at the effects of administration of a killed viral vaccine to cows at dry-off on calf immunity. Forty cows were selected from a 1400 head dairy in northeastern Colorado. These cows received a modified-live vaccine 30 days after freshening as part of their routine vaccine protocol. These cows were then divided into 4 groups (one control and three different brands of killed vaccine). Blood samples were collected from the cows at the time of vaccination near dry off, approximately 60 days after vaccination during the dry period, and at the time of freshening. Additionally, samples were collected from their calves 2-9 days after birth and colostrum administration. These samples were analyzed for titers to IBR, BVD, BRSV, and PI3.

**Preliminary data indicates that the addition of a killed vaccine at dry off to cows already receiving modified live vaccines after freshening offers no advantage in calf immunity.** The titers of calves whose dams had received a vaccine were statistically no different than those calves whose dams were controls. Furthermore, there were no differences detected among the different vaccine brands.