

Introduction

- Bovine herpesvirus-1 (BHV-1) is one of the foremost infections contributing to bovine respiratory disease (BRD) (Nandi et al., 2009)
- BHV-1 can lead to the acute infection of infectious bovine rhinotracheitis (IBR; Yates, 1982)
- Lysine supplementation may decrease the incidence and severity of herpesvirus-associated disease (Griffith et al., 1981; Maggs, 2000)

Materials and Methods

Number of calves (treatment)	Supplement	IBR vaccination
14 (LYS)	17 g/d Lysine	IN
14 (CAS)	17 g/d Casein	IN
14 (LYS)	17 g/d Lysine	IM
14 (CAS)	17 g/d Casein	IM
8 (CON)	0	None

casein (CAS), fed in milk replacer and vaccinated with either an intranasal (IN) or intramuscular (IM) modified-live vaccination on d 35. Control (CON) received no supplement or vaccine.

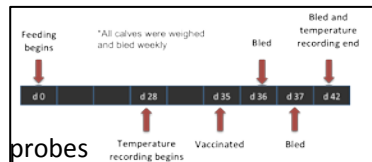
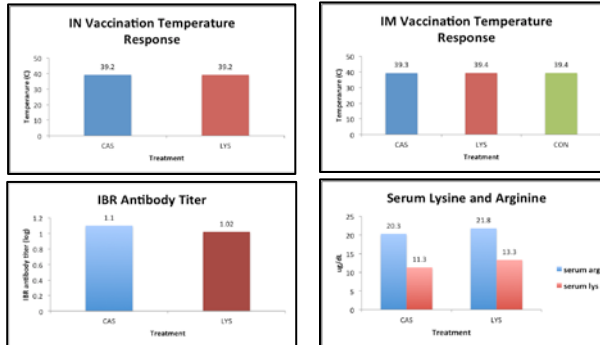


Figure 1. Sixty-four neonatal calves randomly assigned to treatments. Calves were supplemented either lysine (LYS) or casein (CAS), fed in milk replacer and vaccinated with either an intranasal (IN) or intramuscular (IM) modified-live vaccination on d 35. Control (CON) received no supplement or vaccine.

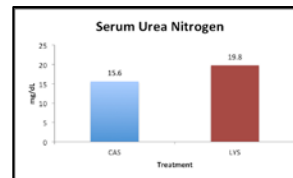
Figure 2. Internal temperature was monitored every 5 min with rectal from d 28 to 42.

Results

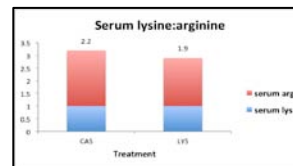
No difference ($P > 0.10$) in temperature, serum lysine and arginine levels or antibody titer response was observed.



Higher SUN levels ($P < 0.05$) were observed in LYS compared to CAS calves.



Greater serum lysine: arginine ($P < 0.05$) in LYS compared to CAS calves.



Conclusion

- Maternal antibodies may have been a factor, reducing the immune response (febrile and antibody titer response) in vaccinated animals.
- Schipper et al. (1978) reported one-third of calves failed to develop antibody titers receiving an initial IBR vaccination
- Supplemental lysine will not alter febrile response or IBR antibody titer levels after a modified-live respiratory
- Supplemental lysine will alter SUN and serum lysine: arginine concentrations in neonatal calves



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Literature Cited:

Griffith, R. S., D. C. DeLong, J. D. Nelson. 1981. Relation of arginine-lysine antagonism to herpes simplex growth in tissue culture. *Chemotherapy*. 27:209-213.

Maggs, D. J., B. K. Collins, J. G. Thorne, et al. 2000. Effects of L-lysine and L-arginine on in vitro replication of feline herpesvirus type-1. *Am. J. Vet. Res.* 61: 1474-1478.

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Schipper, I. A., C. L. Kelling, J. Mayer, and N. E. Pfeiffer. 1978. Effects of passive immunity on immune response in calves following vaccination for IBR. *Veterinary Medicine and Small Animal Clinician* 73(12): 1564-1566

Yates WD. 1982. A review of infectious bovine rhinotracheitis, shipping fever pneumonia, and viral-bacterial synergism in respiratory disease of cattle. *Can. J. Comp. Med.* 46:225-63.