
Prevalence of viral and bacterial pathogens in nasopharyngeal and pharyngeal recess regions of Holstein calves with and without signs of clinical bovine respiratory disease

Annual Report Summary:

Pathogen Information – Completion of Tulare Calves' Study Sampling



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PREVALENCE OF VIRAL AND BACTERIAL PATHOGENS IN NASOPHARYNGEAL AND PHARYNGEAL RECESS REGIONS OF HOLSTEIN CALVES WITH AND WITHOUT SIGNS OF CLINICAL BOVINE RESPIRATORY DISEASE

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I. Acknowledgement:

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II. Materials & Methods:

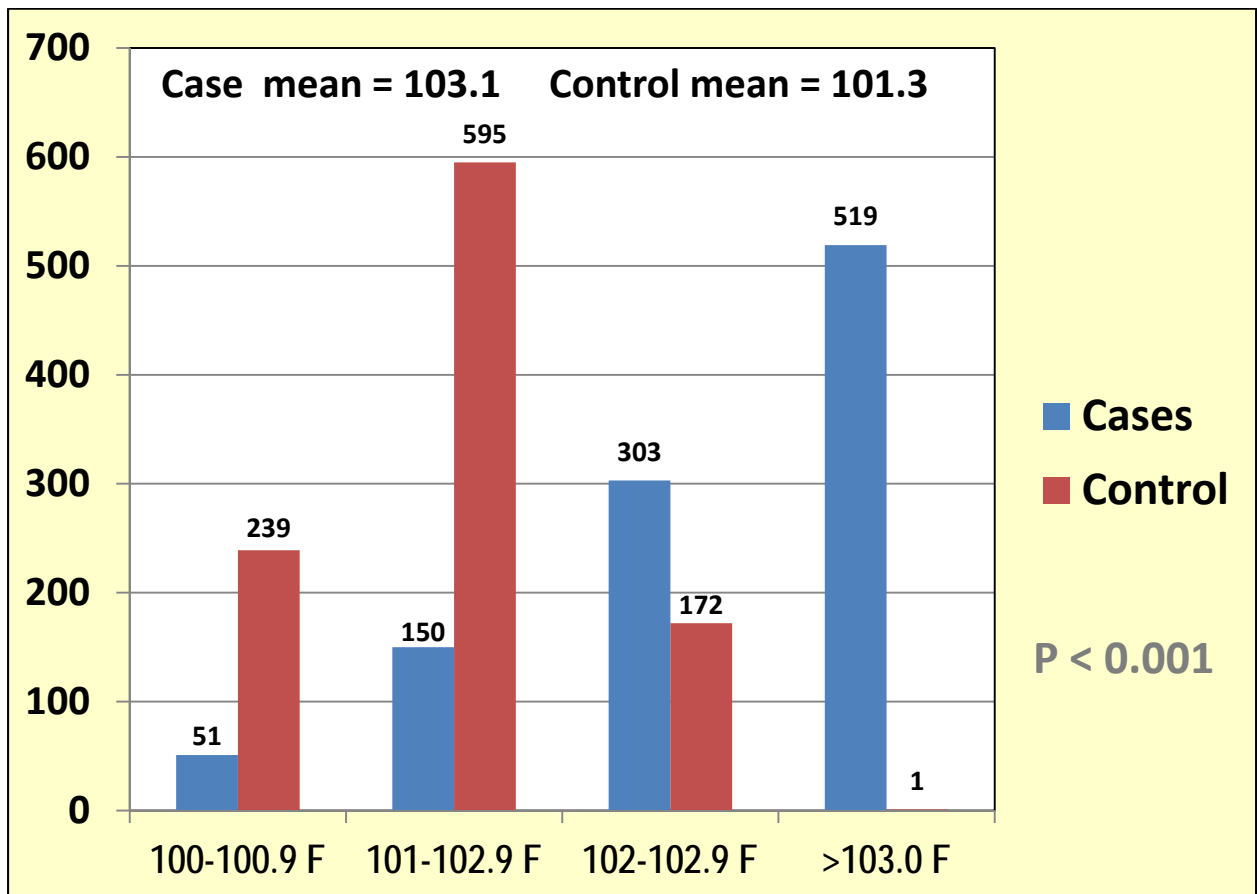
A **case-control** study of bovine respiratory disease (**BRD**) in young Holstein calves

- Evaluate the association of viral and bacterial pathogens from the nasopharyngeal and pharyngeal recess regions
- **Holstein bull and heifer calves ranging in age from 35 to 55 days as cases of BRD**
 - CASES = BRD scores of 5 or greater based upon the University of Wisconsin calf respiratory scoring system which evaluated rectal temperature, cough, nasal and eye discharges, and ear position or head tilt.
 - Controls = BRD scores <5 (3 or less, typically)
 - Target for N = 1,000 cases & 1,000 controls
- **Holstein bull and heifer calves ranging in age from 35 to 55 days**
 - Mid-nasal and deep pharyngeal swabs
 - Cultured for bacteria and *Mycoplasma* spp.
 - PCR for BCoV, BRSV, BVDV, and IBR virus
 - Blood samples for genetic analysis
- **Chi-Square Statistics for Crosstabs Data ($P < 0.05$) [SPSS]**
- **OR's & 95% CI's: Conditional Logistic Regression for Matched Case-Control Studies**

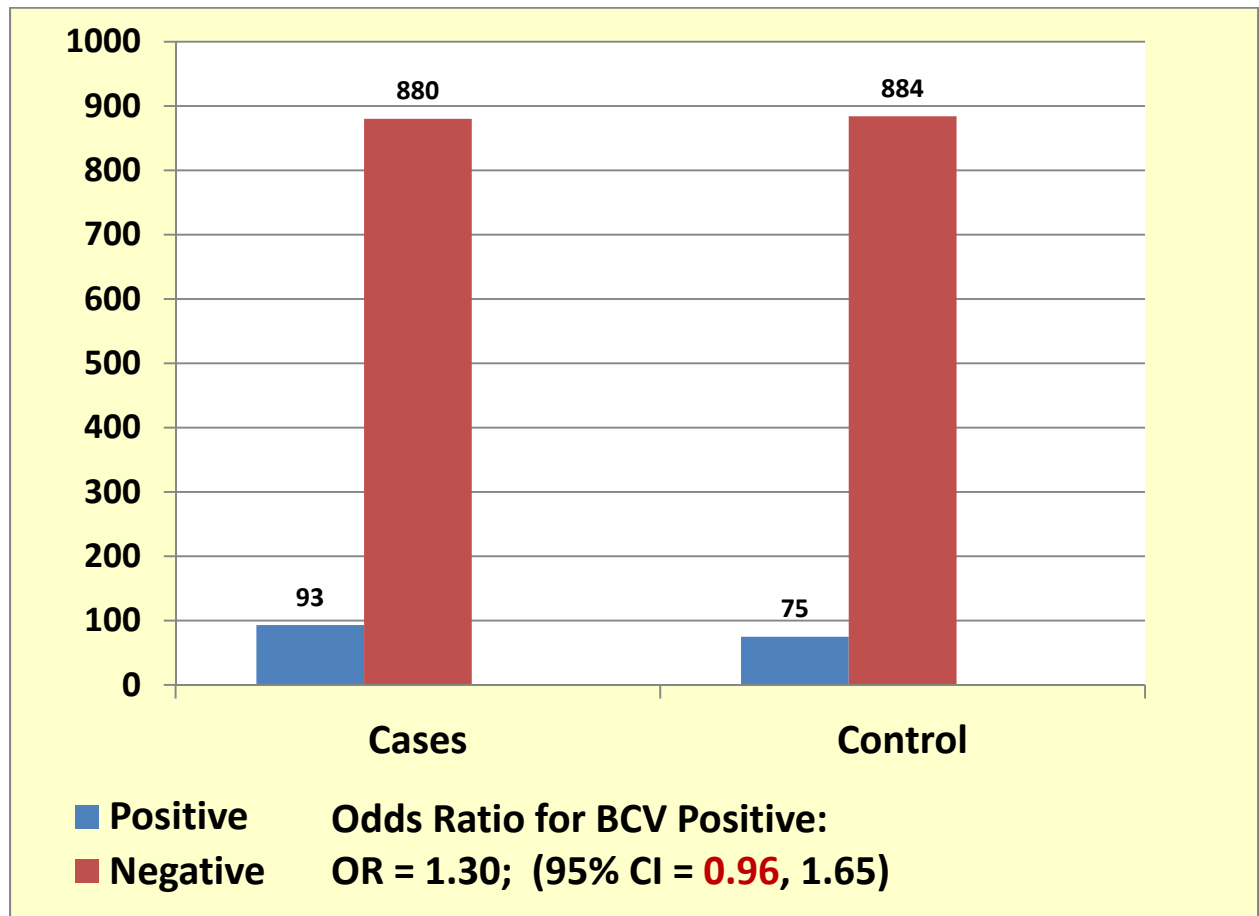
III. Results:

	Bulls	Heifers	Total
Cases	625	398	1023
Percent	61.1%	38.9%	
Controls	655	352	1007
Percent	65.2%	34.8%	
Totals	1280	750	2030
	63.1%	36.9%	

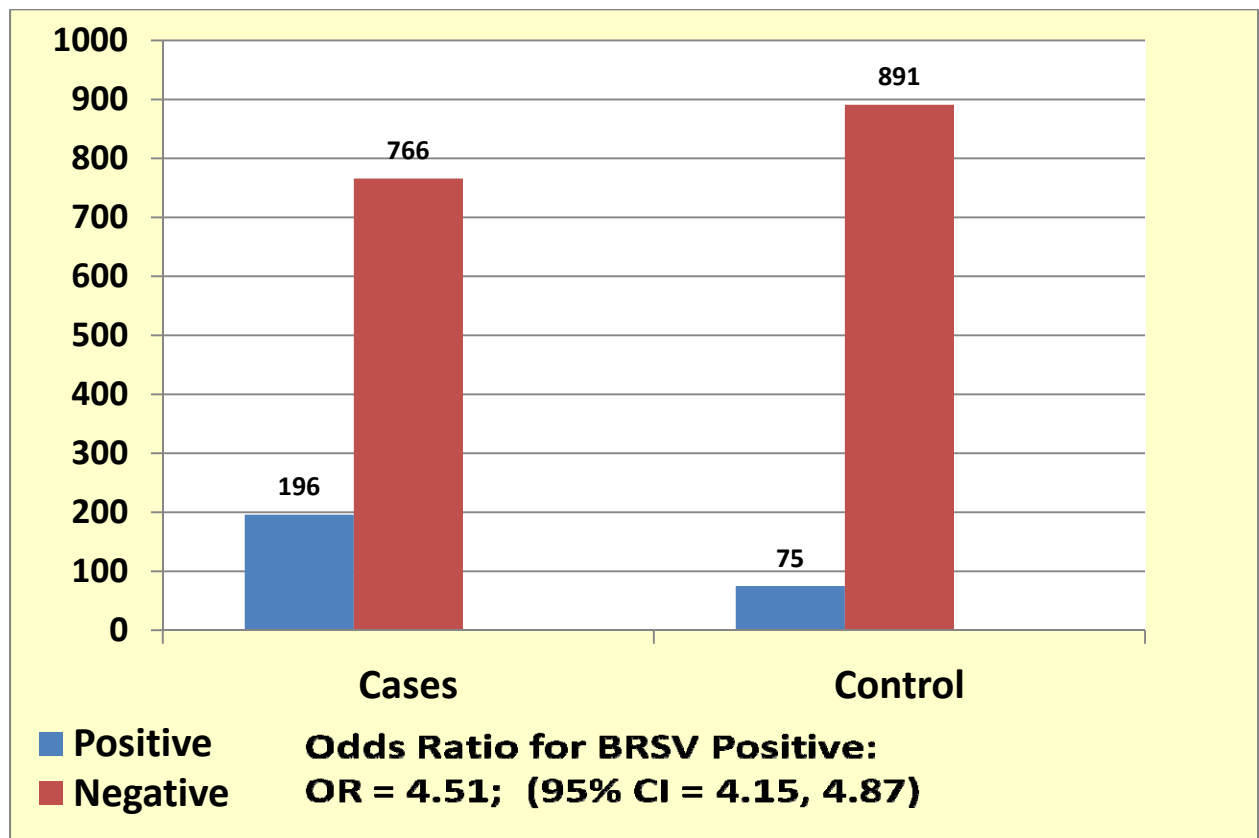
Rectal Temperature Histogram



Bovine Coronavirus Histogram



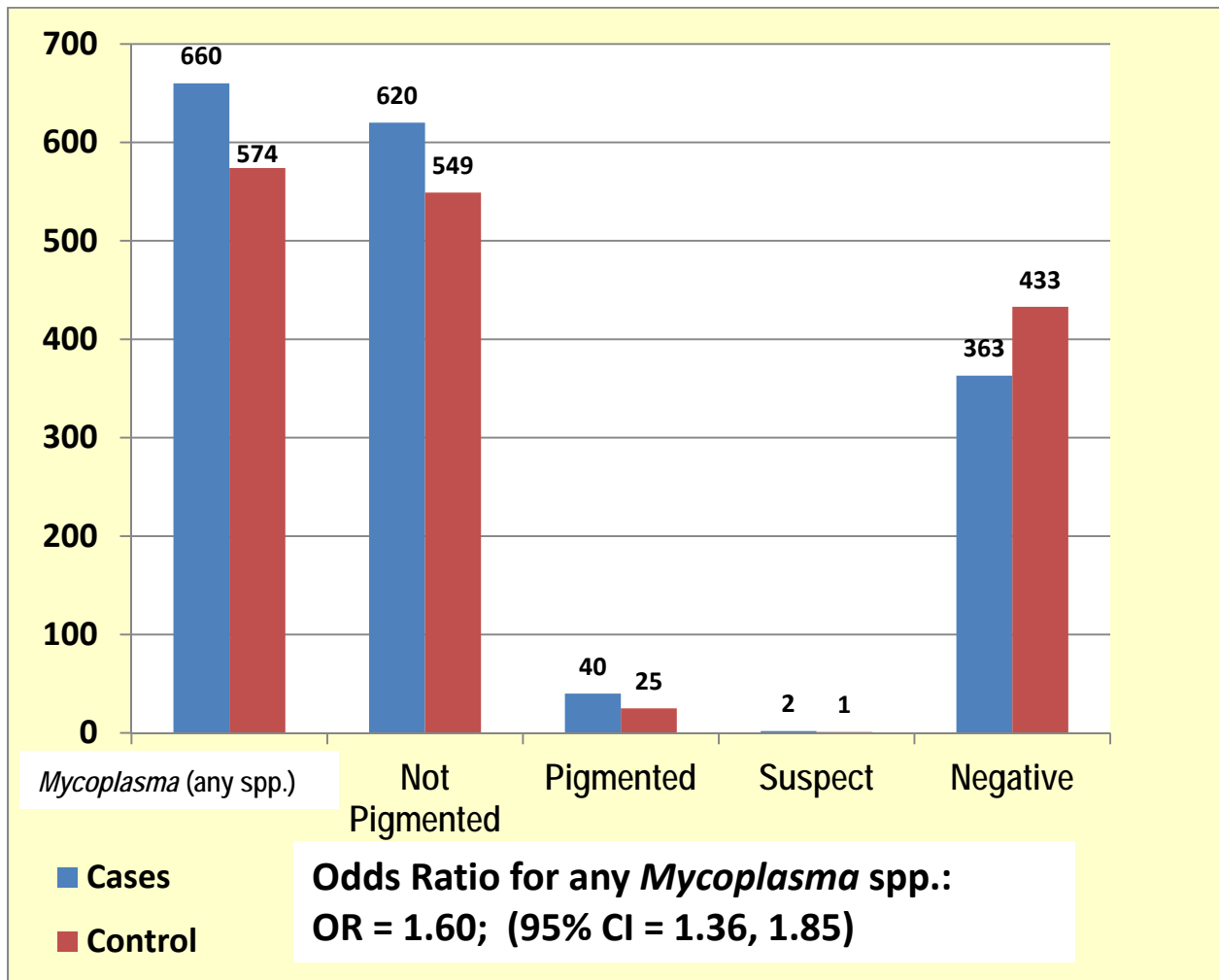
BRSV Histogram



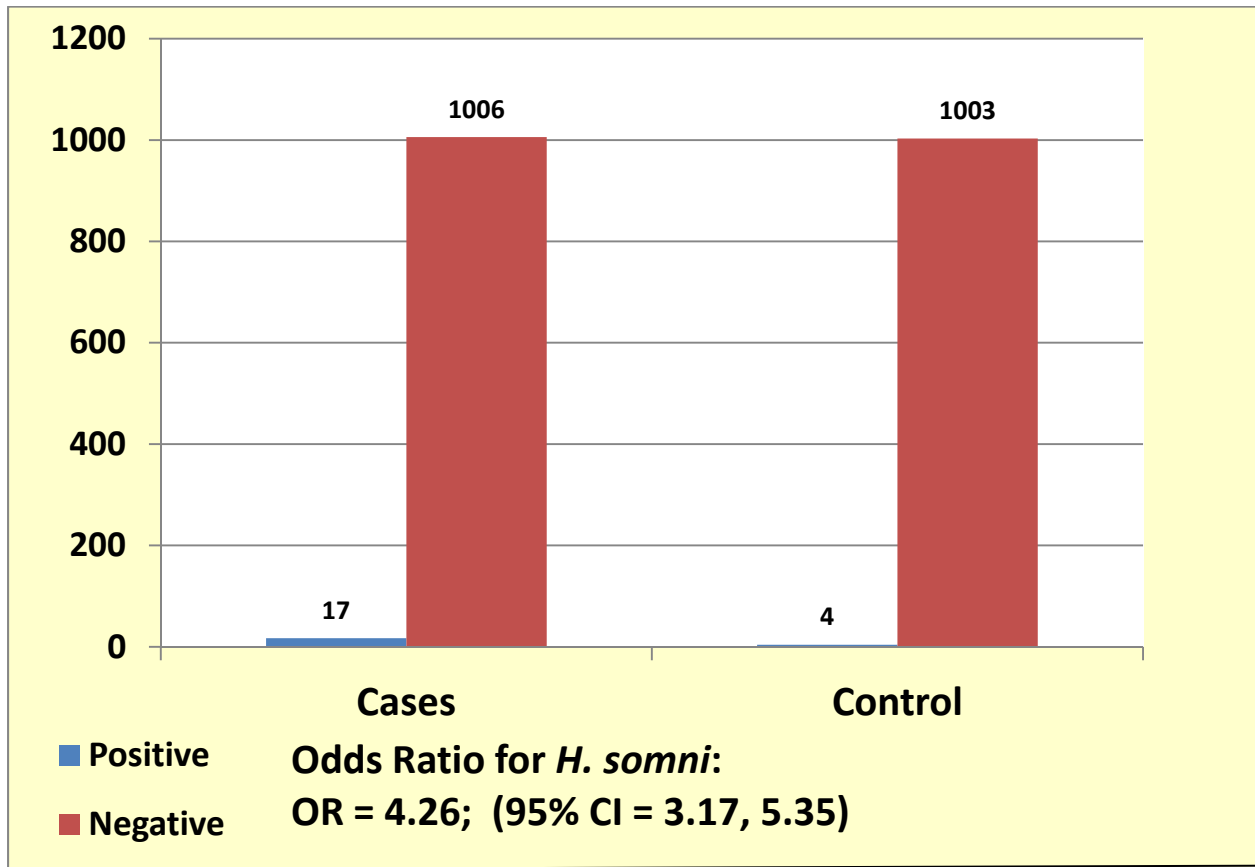
Other Virus PCR Results

- | | |
|---|--|
| <ul style="list-style-type: none"> ▪ BVDV ▪ No positive results ▪ Only 1 indeterminate result | <ul style="list-style-type: none"> ▪ IBR ▪ No positive results ▪ 3 indeterminate results ▪ 2 cases ▪ 1 control |
|---|--|

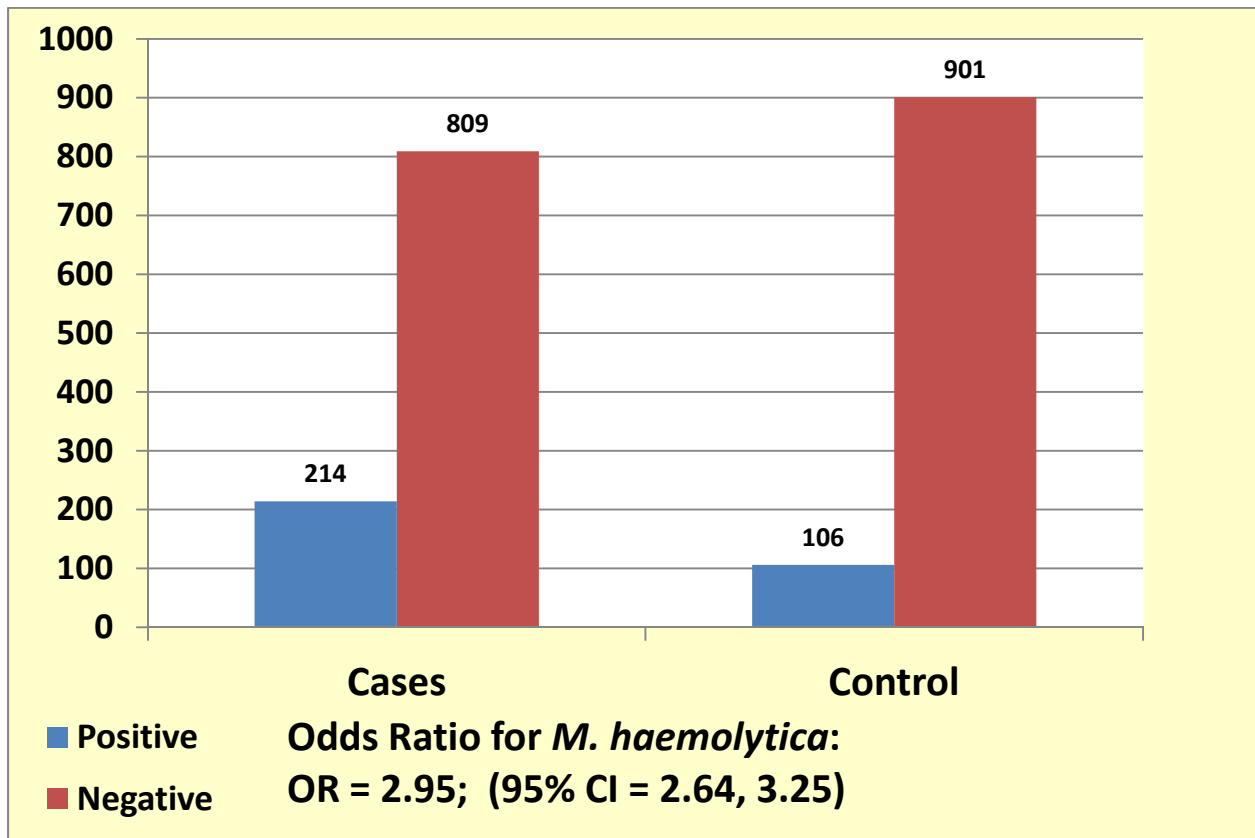
Mycoplasma spp. Histogram



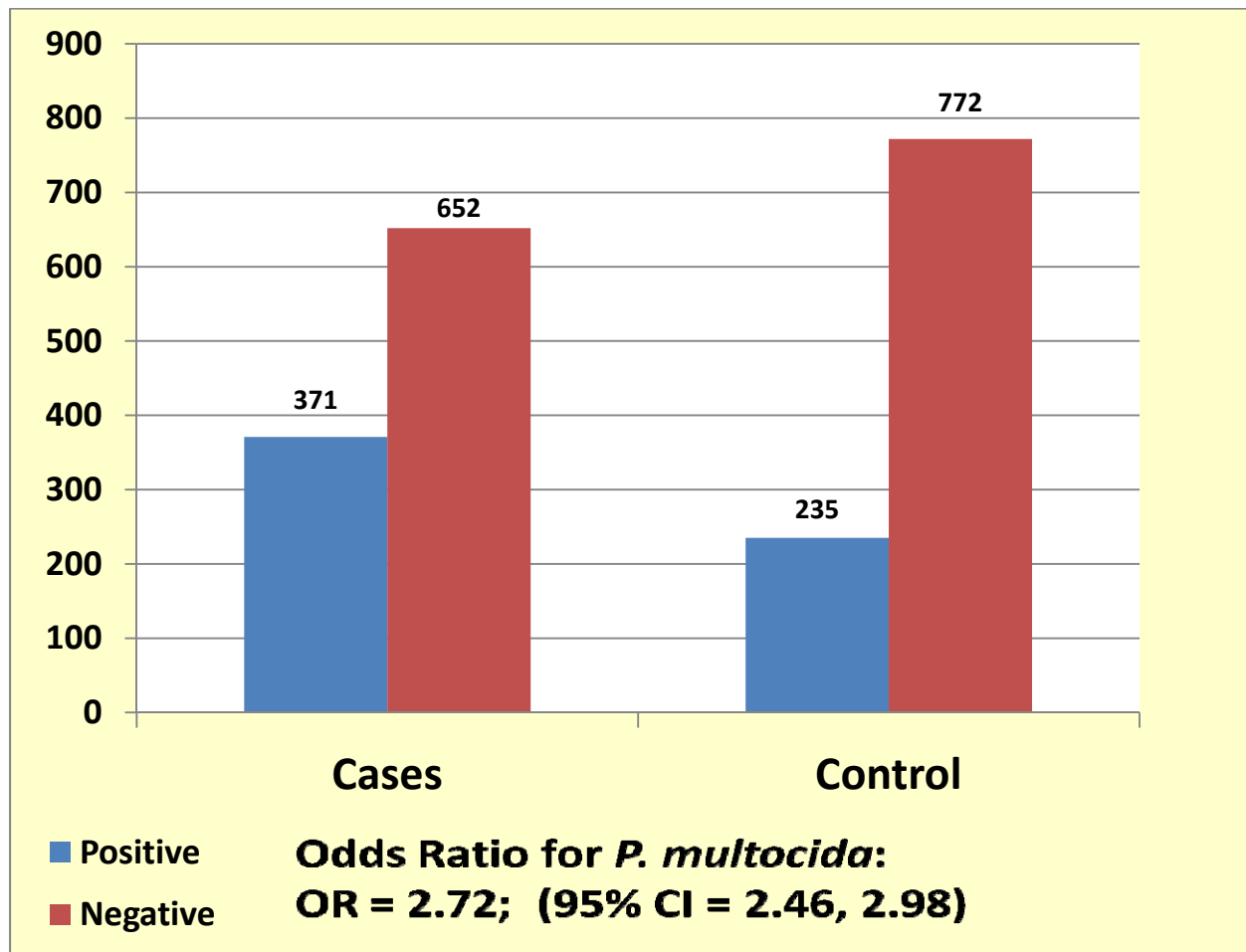
Histophilus somni Histogram



Mannheimia haemolytica Histogram



Pasteurella multocida Histogram



IV. Conclusions:

- Nasopharyngeal and pharyngeal recess swabs provided significant diagnostic prevalence information about important BRD pathogens.
- All 2,030 samples tested for BVDV were negative.
- These negative BVDV findings are equivalent to a maximum disease prevalence of 0.14% in a population of 10,000 to 40,000 calves. (Less than 2 per 1,000)
- **Cases of BRD were significantly associated with these pathogens: BRSV, *Mannheimia haemolytica*, *Pasteurella multocida*, *Histophilus somni*, and *Mycoplasma* spp.**