

Cryptosporidium and Other Parasites Found in Farm Calves Using Multiple Lab Techniques

Alexis Kirkendall^{1,2}, Sue Ishaq¹

¹Food and Agriculture, University of Maine; ²Biology, Heidelberg University
akirkend@heidelberg.edu

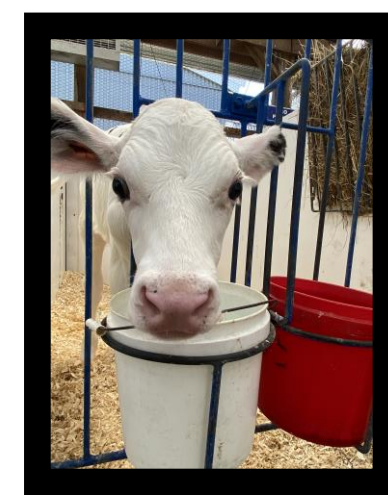
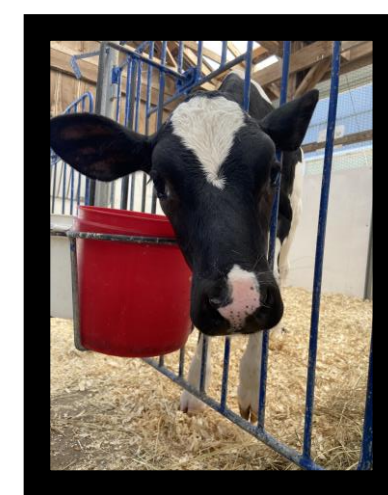


Background

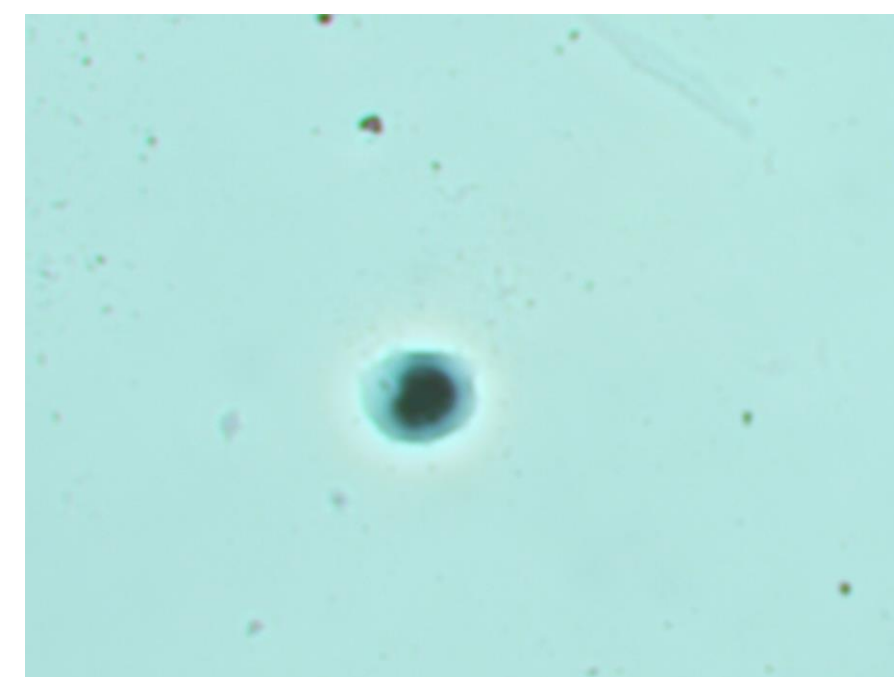
- What is Cryptosporidium?**
Cryptosporidium parvum is a protozoan that is known for causing gastroenteritis in mammals.
- Why Calves?**
Calves that suffer from cryptosporidiosis have slower growth rates. Morbidity is low but these calves require intensive care. This results in a loss of profit on farms.
- Research Question**
Which is the best method for us to cheaply and efficiently identify *Cryptosporidium*?

Methods

- Used water, fecal, and soil samples.
- Multiple ways of staining samples for microscopy
- Water samples were tested with Crypt-A-Glo a fluorescent dye and a Modified Ziehl-Neelsen (MZN) dye procedure.
- Fecal and soil samples were tested using fecal flotations stained with Gram's Iodine.
- Fecal samples were taken from two calves Peach and Nemo



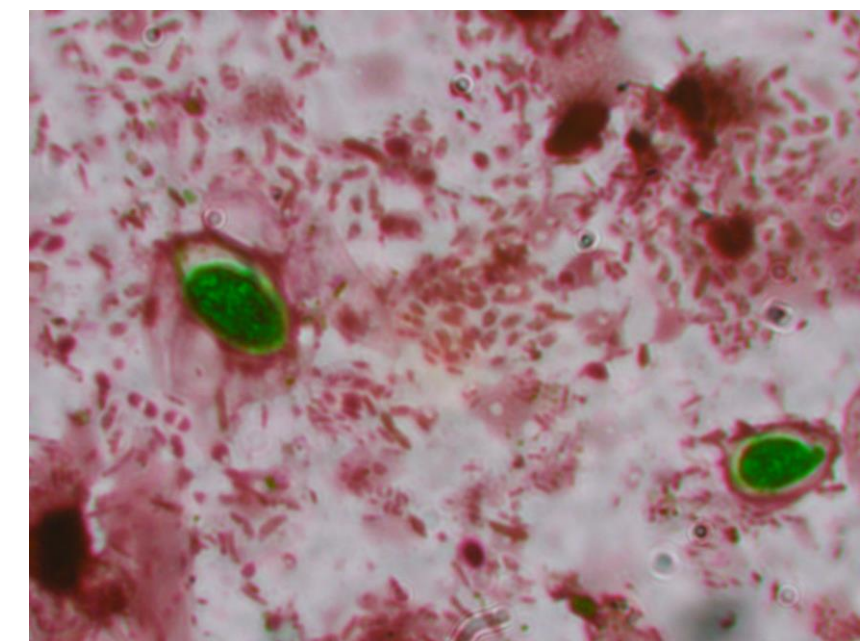
Results



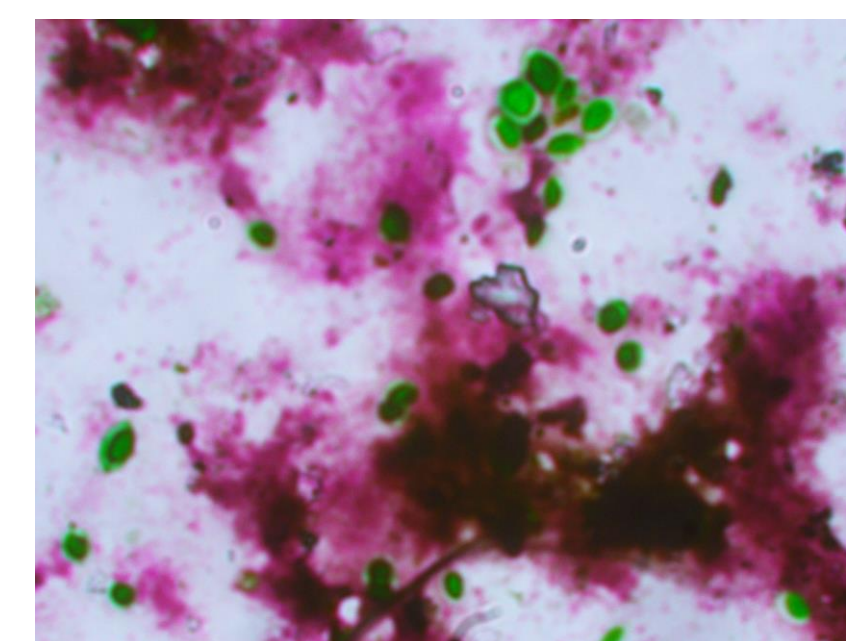
Crypt-A-Glo, 20X, White Light, *Cryptosporidium* Positive Control



Crypt-A-Glo, 10X, DAPI, Puddle From Farm



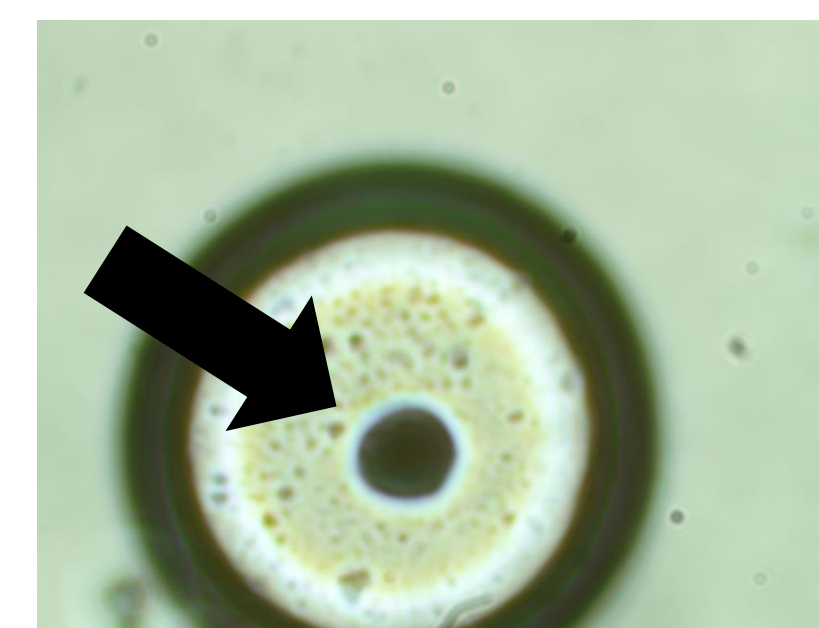
MZN, 100X, White Light, Puddle From Farm



MZN, 32X, White Light, Puddle From Farm



Nematode, MZN, 10X, White Light, Stagnant Stream



Coccidia, Fecal Flotation, 20X, White Light, Calf Pen 5

Conclusions

- The modified MZN Method is the best and easiest method for water samples.
- Crypt-a-Glo can be seen with and without fluorescent microscopy but can be difficult to see.
- Fecal Flotations using Gram's Iodine is a fast and easy way to quickly find protozoa in feces.

Future Applications

- Faster and cheaper research in the future involving *Cryptosporidium* and other protozoans.
- Looking to continue research identifying Crypto with PCR as well.

References

Tomazic ML, Maidana J, Dominguez M, Uriarte EL, Galarza R, Garro C, Florin-Christensen M, Schnittger L. Molecular characterization of *Cryptosporidium* isolates from calves in Argentina. *Vet Parasitol.* 2013 Dec 6;198(3-4):382-6. doi: 10.1016/j.vetpar.2013.09.022. Epub 2013 Sep 27. PMID: 24149044.

Acknowledgments

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