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## ***Calf Note #227 – Recent research on cryptosporidiosis, part 1***

### **Introduction**

In the past year or so, a number of interesting scientific articles published interesting and important information regarding infections with *Cryptosporidium* in young calves and older cattle. Because “crypto” is such an economically important disease on calf raising operations, I thought it would be valuable to take a look at several of these studies in turn. The first comes from the Universidade de Santiago de Compostela in northwestern Spain.

### **The Research**

The researchers visited dairy (n = 86) and beef (n = 60) farms located throughout northwestern Spain and collected fecal samples (n = 594) from calves and cows. All samples were collected from healthy animals – that is, no animal was showing clinical signs of cryptosporidiosis at the time of sampling. Samples were stored for a few days, then analyzed using molecular techniques for DNA from various species of *Cryptosporidium*.

### **The Results**

Of the 594 samples collected, 99 were positive for *Cryptosporidium* DNA, for a prevalence of 16.7%. At least one sample was positive on 45% of farms (64 farms). The most common species were *C. parvum* (42/99), and *C. bovis* (36/99). Other species of *Cryptosporidium* were found at lower frequency. As we can clearly see from Figure 1, the animals with the highest prevalence of any *Cryptosporidium* were calves <1 month of age. Over 80% of the samples were positive for *C. parvum*.

With advancing age, the prevalence declined, and the type of organism changed. We can see that the proportion of *C. bovis* were increased in the groups 1-2, 2-12, and 12-24 months. Older cows had a “mixed bag” of several species of *Cryptosporidium* and could realistically be considered a reservoir of infection for youngest animals.

Many studies have reported that *C. parvum* is the organism most commonly associated with cryptosporidiosis in young calves. It is thought that calves <1 month of age are particularly susceptible due to their immature immune system and as active immunity develops, calves become less susceptible to infection.

It’s also interesting to note that even though samples were taken from healthy animals, a significant percentage of animals were positive for *Cryptosporidium* in their feces. Nearly 30% of calves <1 month of age were positive for *Cryptosporidium*, and mostly *C. parvum*. It’s important to note that *C. parvum* is zoonotic – that is, it causes disease in humans as well as calves. Therefore, special care should be taken by naïve individuals to avoid possible contamination with oocysts from young

calves. Individuals with any type of immune suppression are particularly at risk and should avoid contact with young calves.

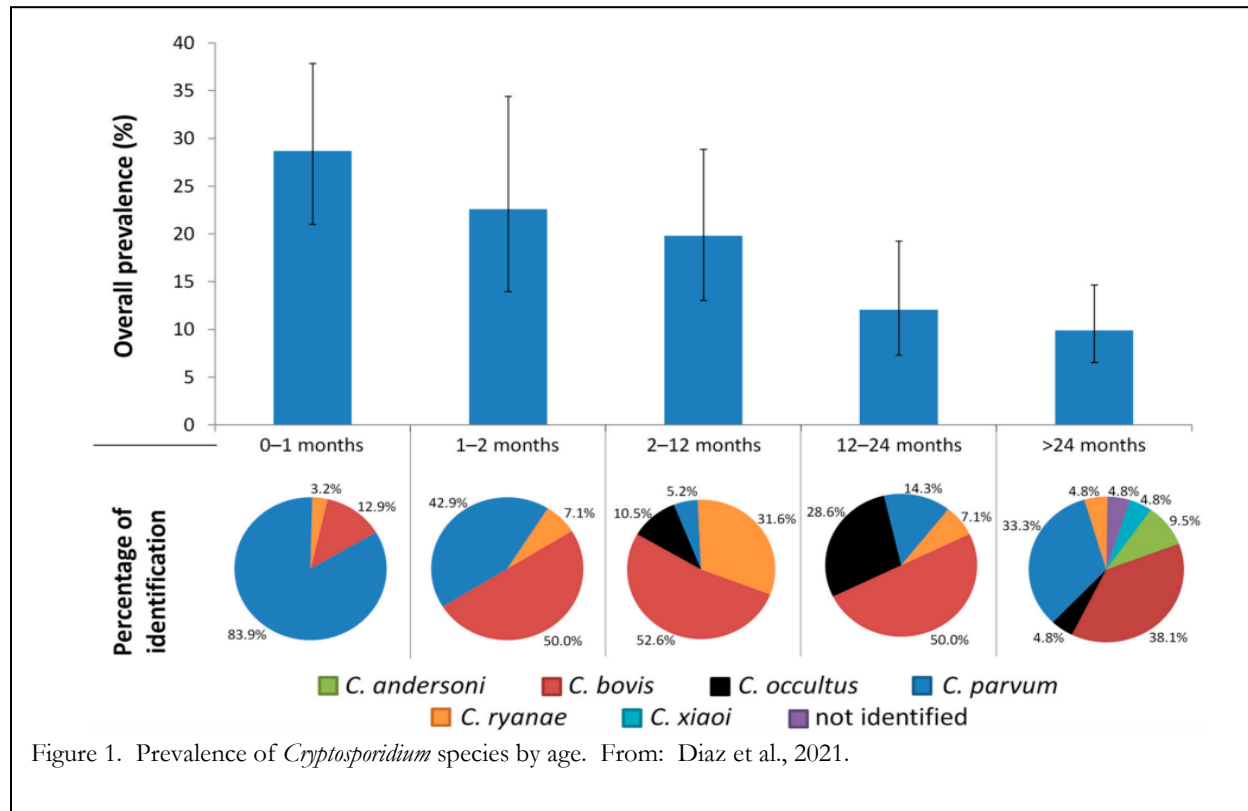


Figure 1. Prevalence of *Cryptosporidium* species by age. From: Diaz et al., 2021.

## Summary

A significant portion of calves shed *Cryptosporidium* species in their feces, even though they were clinically healthy and exhibited no signs of disease. Also, the type of organism changes with advancing age, and presumably maturation of the calf's immune system.

## Reference

Diaz, P., E. Navarro, S. Remesar, D. García-Dios, N. Martínez-Calabuig, A. Prieto, G. López-Lorenzo, C. M. López, R. Panadero, G. Fernández, P. Díez-Baños and P. Morrondo. 2021. The age-related *Cryptosporidium* species distribution in asymptomatic cattle from north-western Spain. *Animals*. 11:256. <https://doi.org/10.3390/ani11020256>.

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