United States
Department of
Agriculture

Animal and
Plant Health
Inspection
Service

Veterinary
Services

Cryptosporidium and Giardia in Beef Calves

National Animal Health Monitoring System

Cryptosporidium is commonly associated with neonatal diarrhea in calves. *Giardia* has been reported to cause diarrhea among humans, dogs, cats, calves, and horses. Little information has been available on fecal shedding patterns of *Cryptosporidium* and *Giardia* among beef calves.

As part of a 1992-93 study of cattle health and management on the nation's cow/calf operations, beef cow/calf producers were offered the opportunity to submit fecal samples from scouring beef calves less than 3 months of age. The samples were tested for the presence of *Cryptosporidium* and *Giardia*. In addition, fecal pats from nonscouring calves less than 6 months of age were collected and evaluated similarly.

The USDA's National Animal Health Monitoring System (NAHMS) collected the samples and other data during the Beef Cow/Calf Health and Productivity Audit (CHAPA). The National Veterinary Services Laboratories (also of the USDA) performed the tests. An objective of the CHAPA was to describe health and management for 70 percent of U.S. beef cow inventory.

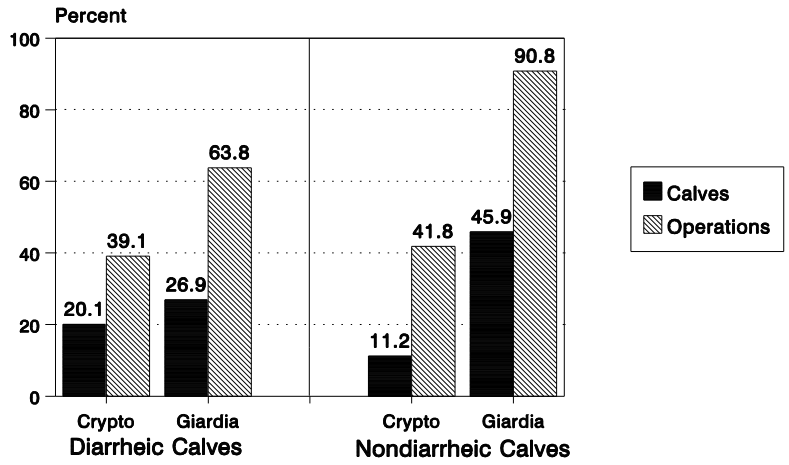
Producers from a total of 69 operations submitted 391 samples from diarrheic calves for *Cryptosporidium* and *Giardia* evaluation. A total of 1,053 samples were submitted from nondiarrheic calves from 141 operations.

Percentages of calves positive for each evaluation are shown in Figure 1. Just over 20 percent of the samples from diarrheic calves submitted for *Cryptosporidium* evaluation were positive, as were 11.2 percent of those submitted from nondiarrheic calves. *Giardia* was more common than *Cryptosporidium* in diarrheic calves and nondiarrheic calves. Just over one-quarter (26.9 percent) of samples from diarrheic calves submitted for *Giardia* evaluation were positive, as were 45.9 percent of those from nondiarrheic calves. Differences in prevalences between diarrheic and nondiarrheic calves are probably at least partly due to an older average age of calves in the nondiarrheic group.

Figure 1 also shows that *Cryptosporidium* and *Giardia* commonly exist on beef operations. Nearly 40 percent of operations submitting samples from diarrheic calves had at least one positive for *Cryptosporidium*. Also, 41.8 percent of operations submitting samples from nondiarrheic calves had at least one positive. Nearly two-thirds of the operations for which diarrheic samples were tested for *Giardia* had at least one positive result, and 90.8

Figure 1

Percent of Operations and Calves Positive for Cryptosporidium and Giardia



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percent of the operations with nondiarrheic calf samples tested had at least one positive.

Some of the test results were related to calf age. Among diarrheic calves, those positive for *Giardia* tended to be older than those that were negative, 47.1 days for positive and 35.3 days for negative (Figure 2).

Figures 3 and 4 show the results of testing for both organisms by age group. The percentage of diarrheic calves positive for *Giardia* was highest for those in the 31- to 60-day age group (37.1 percent, Figure 3). More than one-half of the nondiarrheic calves from 61 to 90 days of age tested positive for *Giardia* (Figure 4).

Overall, there was a trend to decreasing prevalence of positive samples among nondiarrheic calves as the average age of the calves increased.

In summary, *Cryptosporidium* and *Giardia* appear to be common in beef calves whether they have diarrhea or not and are common in beef herds. Fecal shedding of both organisms is related to calf age with oldest calves being much less likely to shed than young calves.

Other NAHMS collaborators included the National Agricultural Statistics Service (USDA) and State and Federal Veterinary Medical Officers.

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Figure 2

Average Age of Calves by Results of Fecal Evaluation for Cryptosporidium and Giardia

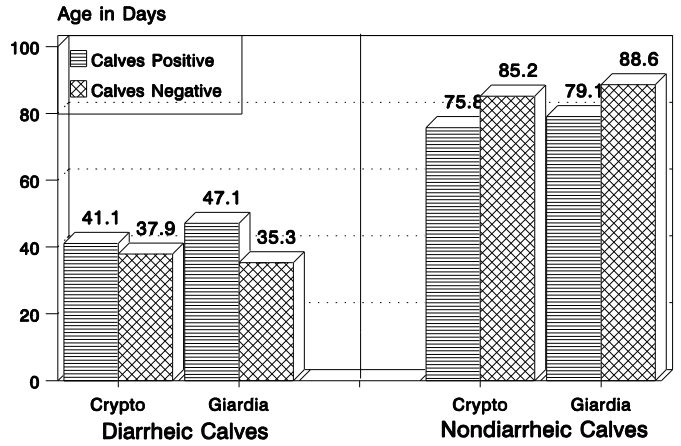


Figure 3

Prevalence of Cryptosporidium & Giardia Among Calves With Diarrhea

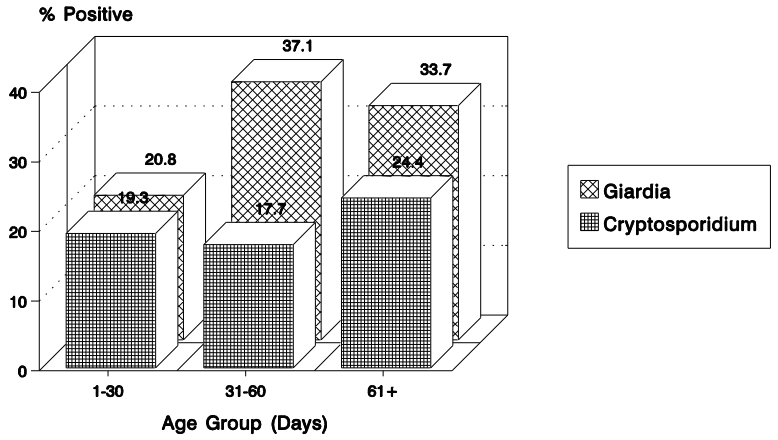
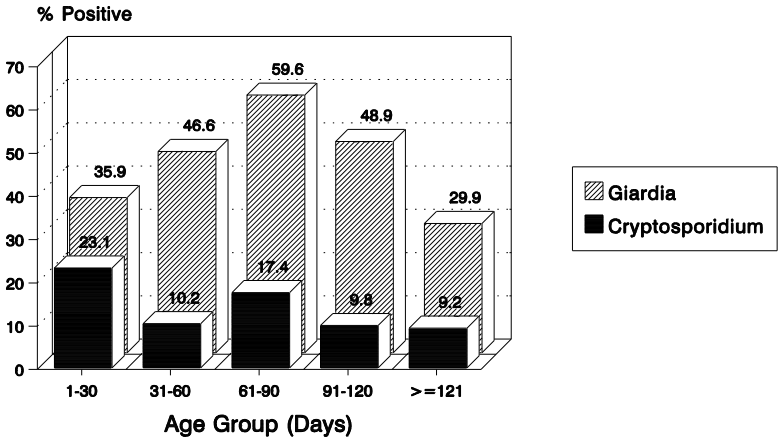


Figure 4

Prevalence of Cryptosporidium & Giardia Among Calves Without Diarrhea