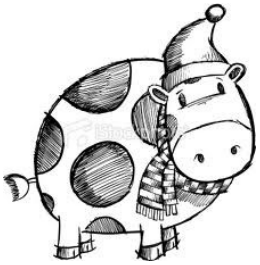
Attica Veterinary Associates

116 Prospect Street, Attica, NY 14011

585-591-2660 / fax 585-591-2898 / Text line 585-356-3420

www.atticacows.com

Newsletter – January 2024



We would like to wish you and your family

A very Merry Christmas and Happy Holidays!

We appreciate your business and support throughout the past year.

Holiday Hours: Please note – emergency services available 24/7/365 (585-591-2660),

Do not call the text line for emergencies as it's not manned 24/7

- Christmas Day – Monday - 12/25/23 – office closed
- New Years Day – Monday 1/1/24 – office closed

ALL ABOUT…..the Parasite - Giardia

Giardia is one of several protozoan parasites that affect dairy cattle. Of the traditionally accepted six species of Giardia, only one, *duodenalis*, is common in calves. Of the seven genotypes of this species, only one (Assemblage A) uses both livestock and humans as hosts. Of interest to us are two forms the parasite takes on as it goes through its life cycle. One form is a cyst. This egg-like structure is shed in an infected animal's feces. The other form is a soft body with a tail (trophozoite). ***This particular Giardia genotype may also cause infections in humans as well as livestock.***

Transmission

- Transmission from one calf to another is achieved by ingestion of a cyst. The cysts most often come from the feces of infected heifers and cows. However, almost any source of fecal matter can serve as a means of infection. Contaminated water is the most common source. In this mode, the water source is usually determined to be contaminated with cysts.
- Because these cysts are resistant to chlorine bleach, chlorinating systems for water do not destroy the cysts. Because the cysts are tiny, 6-10 microns, most water filters do not remove cysts from the water supply. Standing surface water, however, might be the source of cysts.
- In addition, calf care personnel can carry the parasite from one calf to another by their feet, clothing and hands. An especially high-risk activity is handling water-feeding equipment. If a caregiver's hands are contaminated with cysts from calf manure, they can pass the cysts from water pail to water pail. Also, it is possible for feed to be contaminated. With calves, fecal contamination of grain pails and feed troughs is common. Also, it is possible for both birds and insects to carry mechanically the pathogen from contaminated feces to grain and forage.

Cyst Shedding

- The age of shedding in calves is most commonly between two and ten weeks. Calves shed both cysts and trophozoites. We are not concerned with trophozoite shedding because they die soon after leaving the body. Diarrhea usually occurs in the three to eight week age interval. Shedding continues at least one to two weeks in untreated animals. Shedding peaks most often in calves about five weeks of age. Unfortunately, while diarrhea symptoms may end after a couple of weeks, these animals may continue to shed cysts at a declining rate for a longer period. Olson estimated the shedding period may exceed thirty weeks.

Cyst Survival in the Environment

- Cysts are not affected by common disinfectants such as chlorine bleach. The most favorable environment for survival is water. Cysts survive one to three months in water although longer times might occur. Moist soil will protect cysts for several months, as well. The key to survival is moisture. On a dry surface, nearly all cysts will be destroyed within one week. Temperature is an essential survival element, also. Cyst survival declines rapidly as the temperature approaches freezing. Evidence shows that freezing destroys cysts.

Diarrhea

- While many factors are involved in determining an infective dose of any pathogen, it has been estimated that as few as ten cysts may cause a Giardia infection in a susceptible calf. Thus, the infective dose for most calves probably is quite low. This is especially true for calves that have a weak immune system. This might be due to passive transfer failure from colostrum, not having enough to eat, having unclean or wet bedding, or any other source of stress.
- The nature and severity of symptoms have been observed to vary widely from animal to animal. In addition, symptoms have a tendency to be cyclical, coming and going over a period of several weeks. For some heifers, this may be a self-limiting infection as they build resistance to the parasite. Unfortunately, somewhere between thirty to fifty percent of animals may develop a chronic infection lasting typically seven or more weeks.

Recovery and Treatment

- The majority of heifers will recover spontaneously from giardiasis because they have a very strong immune system and the challenge is relatively low. The time for a heifer to develop immunity (humoral type) so that the infection is self-limiting may exceed one hundred days. Thus, a substantial minority is likely to develop chronic diarrhea that may last for seven or more weeks. The most cost-effective methods of control once the parasite is identified among calves are excellent colostrum management and adequate nutrition. These best management practices create a strong immune system capable of fighting off the Giardia pathogen.
- Nevertheless, some calves will develop an infection if the exposure level is sufficiently high. “Benzimidazoles (fenbendazole, albendazole) have been shown to be effective in elimination of *Giardia* from confined and range calves.” (Olson, p4) Olson notes that, “Although these agents are highly effective, reinfection frequently occurs if the sources of environmental contamination are not eliminated.” **It is important to remember that cyst shedding does not stop when diarrhea symptoms end.**

References: Olson, M. E. “Zoonotic protozoan parasites in cattle: emerging issues” in Proceedings of 23rd Buiatrics Congress, Quebec, CA, 2004. Trout, J and Others, “Giardia” USDA EMSL Reports. O’Hanley R.M. and Others,“Duration of naturally acquired giardiosis and cryptosporidiosis in dairy calves and their association with diarrhea.). Am. Vet. Med. Assoc. 214 (391-396).