



Hemorrhagic Bowel Syndrome

Background

Hemorrhagic bowel syndrome (HBS) is a sporadic, acute intestinal disease of milking cows. HBS also is known as 'bloody gut' and 'jejunal hemorrhage syndrome,' and is characterized by large blood clots in the intestine that result in obstruction and severe enlargement of the bowel. Clinical signs associated with HBS include: clotted blood in feces; abdominal distention; profound depression; acute decline in milk production; dehydration; loss of appetite; extreme weakness; and death.^{1,2,3} Common biochemical changes in blood from HBS cases are: high glucose; high magnesium; low sodium; low potassium; and low chloride. Ultrasound exams of HBS cows often reveal dilated loops of intestine with clotted blood in the lumen.¹ Both medical and surgical treatments have been relatively unsuccessful in treating HBS. Consequently, HBS has a high fatality rate, recently reported to be 85 percent.^{1,2,3}

The Role of *Clostridium perfringens* Type A

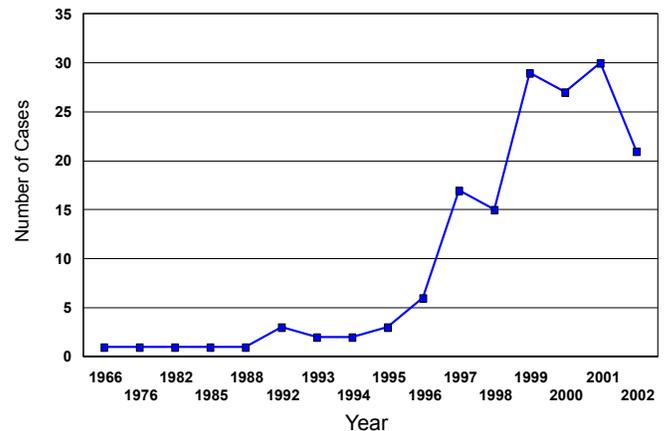
Several reports suggest that *Clostridium perfringens* Type A might be involved in the etiology of HBS. In fact, *Clostridium perfringens* Type A has been found in 85 percent of HBS cases.¹ However, because this type of *Clostridium* is found commonly in both the environment and in bovine gastrointestinal tracts, it has not yet been determined if the organism is involved in the primary disease process or proliferates as a secondary response. Other proposed HBS risk factors are: increasing milk production; feeding a high-energy total mixed ration (compared to a component diet); and a decrease in dietary fiber.^{1,2}

Dairy 2002 Study Results

HBS was evaluated nationally for the first time during the National Animal Health Monitoring System's Dairy 2002 study. As part of the study, producers from 21 States* were asked to describe their familiarity with HBS. Overall, only 1.0 percent reported being fairly knowledgeable about the disease; 2.5 percent said they knew some basic information about the syndrome; 8.7 percent recognized the name but knew little else; and 87.8 percent had not heard of HBS. Awareness of HBS increased with herd size.

HBS was documented as early as 1966, with few cases reported in the next 20 years. Over the past 5 or 6 years, there has been a significant increase in the number of initial HBS cases. This increase supports practitioner and producer claims that HBS is an important emerging disease³ (Figure 1).

Figure 1. Number of HBS Cases by Year.



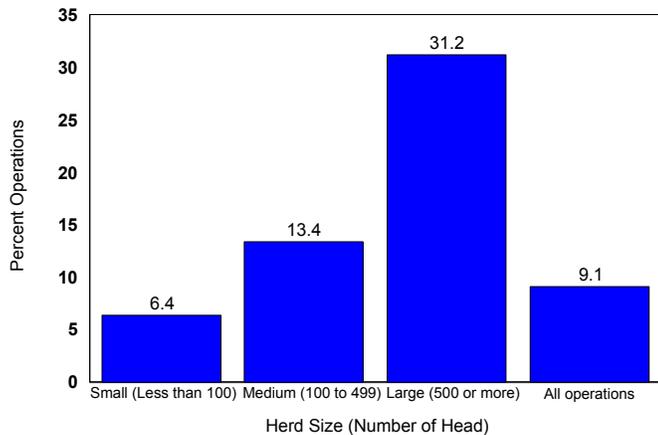
States/Regions*

- West:** California, Colorado, Idaho, New Mexico, Texas, Washington
- Midwest:** Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, Wisconsin
- Northeast:** New York, Pennsylvania, Vermont
- Southeast:** Florida, Kentucky, Tennessee, Virginia

Of 1,009 operations participating in this phase of Dairy 2002, 121 (12 percent) reported at least one case of HBS in 2001. For 2001, the mean number of HBS cases per operation (among operations that reported an HBS case), was 5.6 (median 2.0). When asked about the number of HBS cases during the previous 5 years, 171 producers reported to have had at least one cow with signs consistent with HBS. The mean number of HBS cases per operation (among operations that reported an HBS case during the previous 5 years), was 14.1 (median 4.0).

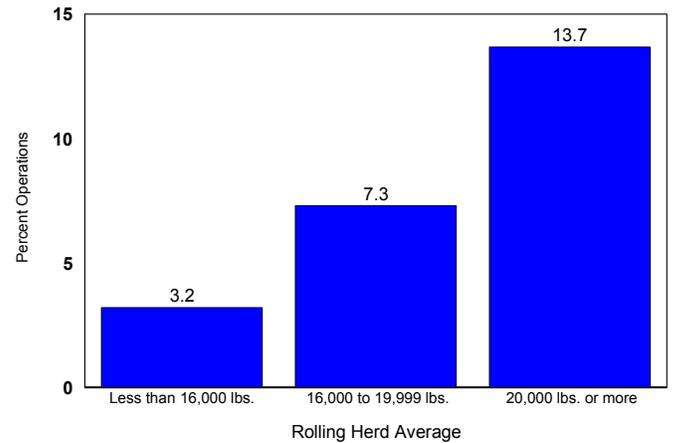
The Dairy 2002 study also evaluated in 2001 the relationship of HBS cases to herd size for the previous 5 years. Nearly one out of three (31.2 percent) large operations reported at least one HBS case, while 13.4 percent of medium operations and 6.4 percent of small operations had at least one case of HBS. Over all operations, 9.1 percent had at least one case of HBS in the previous 5 years (Figure 2).

Figure 2. Percent of Operations that Reported Having at Least One HBS Case During the Previous 5 years, by Herd Size.



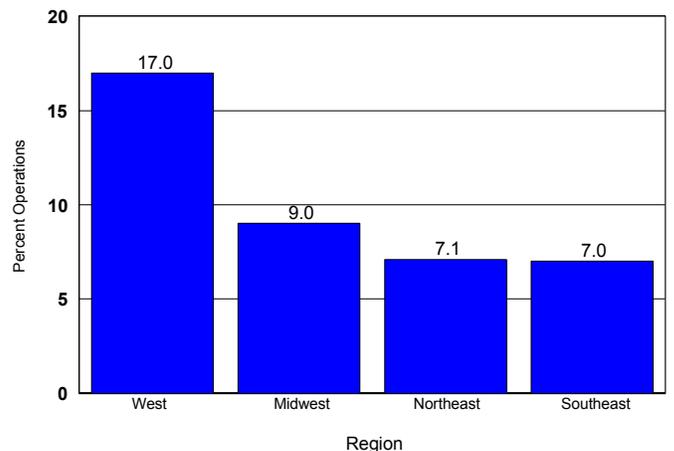
In addition, operations with HBS cases during the previous 5 years were assessed by rolling herd average (average pounds of milk per cow in 2001). The percent of operations with one or more HBS case increased as rolling herd average increased: 13.7 percent of operations in herds producing than 20,000 pounds or more; 7.3 percent in herds producing 16,000 to 19,999 pounds; and 3.2 percent in herds producing less than 16,000 pounds (Figure 3).

Figure 3. Percent of Operations that Reported Having at Least One HBS Case During the Previous 5 Years, by Rolling Herd Average.



Nearly one in five (17 percent) operations in the West region* reported at least one HBS case in the previous 5 years. A smaller percentage (9.0 percent) of operations in the Midwest region reported one or more cases of HBS, followed by 7.1 percent in the Northeast region and 7.0 percent in the Southeast region (Figure 4).

Figure 4. Percent of Operations that Reported Having at Least One HBS Case During the Previous 5 Years, by Region.

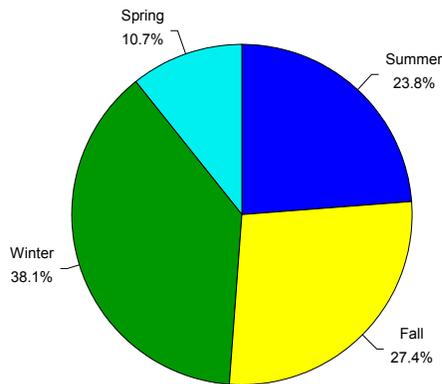


Dairy 2002 also evaluated the occurrence of HBS by season for the previous 5 years. Producers were asked to identify the season the majority of HBS cases occurred. The majority of cases occurred on 38.1 percent of operations in winter; 27.4 percent in fall; 23.8 percent in summer; and 10.8 percent in spring (Figure 5). These findings are consistent with prior studies.²

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Figure 5. Percent of Operations that Reported Having at Least One HBS Case During the Previous 5 Years, by Season.



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Conclusions

HBS is a highly fatal intestinal disease. Animals with HBS have a poor prognosis, regardless of treatment. Producers are relatively unfamiliar with HBS. Only 3.5 percent of participating producers had at least some knowledge of the syndrome. The incidence of HBS has increased considerably during the past 5 or 6 years. HBS is more prevalent in large herds, herds with high production, and herds in the Western region. However, HBS has been a significant problem in herds of all sizes, production levels, and regions of the country.

¹ Dennison AC, VanMetre DC, Callan RJ, et al. Hemorrhagic bowel syndrome in dairy cattle: 22 cases (1997-2000). *J AM Vet Med Assoc* 2002;221:686-689.

² Godden S, Frank R, Ames T. Survey of Minnesota Dairy Veterinarians on the Occurrence of and Potential Risk Factors for Jejunal Hemorrhage Syndrome in Adult Dairy Cows. *Bov Pract* 2001;35:97-103.

³ Kirkpatrick MA, Timms LL, Kersting et al. Case Report—Jejunal Hemorrhage Syndrome of Dairy Cattle. *Bov Pract* 2001;35:104-115.