OmniGen®

Technical Bulletin

**Information from Phibro Technical Services**

# *Hemorrhagic Bowel Syndrome*


## Summary

- 14% of herds identified Hemorrhagic Bowel Syndrome (HBS) as a problem and 79.3% of cows with HBS were removed from the herd due to death or culling (NAHMS, 2014).
- *Aspergillus fumigatus* (AF) a pathogenic invasive mold is associated with HBS (Van Metre, 2006).
- OmniGen® may assist cows in addressing AF by supporting the immune system and through its antifungal properties in feed.


## Introduction

Hemorrhagic Bowel Syndrome (HBS) is characterized as an acute and sometimes massive hemorrhage in the small intestine (Rowson and LaFaunce, 2014, Figure 1). Symptoms include: depression, rumen stasis, a sudden decrease in milk production, colic, dehydration, dark feces and clotted blood in feces (McGuirk, 2014). This syndrome results in a fatality rate of >85% (Kirkpatrick, 2001).

*Aspergillus fumigatus* (AF) is a common invasive fungus that can be found in forages and feed ingredients. The DNA from AF is frequently found in blood and tissues of cows that were diagnosed with HBS. Van Metre (2006) reports, "there are currently two hypotheses regarding its participation: 1) As a primary contributor to the intestinal lesion, or 2) as an agent that impairs the cow's immune system."

There has been speculation that *C. perfringens* Type A plays a role in HBS. However, research at the University of Wisconsin (Table 1) showed that *A. fumigatus* ($P < 0.001$) could be associated with HBS but the association between *C. perfringens* type A ($P = 0.466$) with HBS was not as clear (Socket, 2004).

## Controlling HBS

Attempts to create HBS in a laboratory setting have failed. Field experience and case studies are useful to determine what health events are present when cows are fed OmniGen or not fed OmniGen. In the periods where OmniGen was fed, the herd reported fewer HBS cases, fewer dead cows and less mastitis (See Table 2) (Chapman, 2007).

Puntenney (2003) reported the growth of AF in feed containing AF was reduced when OmniGen was mixed in the feed (Figure 2). Feeding OmniGen improved immune function in ruminants fed feed containing AF providing evidence that enhanced immune function in cows fed OmniGen may help overcome the effects of AF (Forsberg, 2006).

Hemorrhagic Bowel Syndrome causes sudden death in dairy cattle. Feeding OmniGen supports the immune system while helping to slow the growth of AF, both of which can lead to a reduction in the potential for HBS.

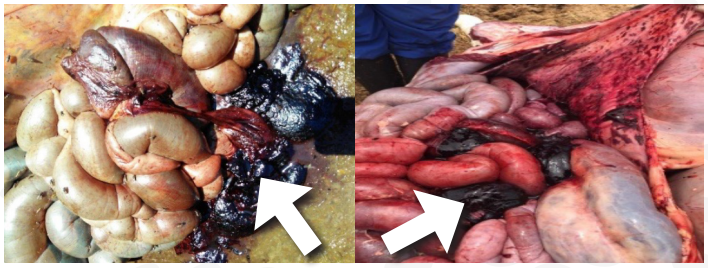

Figure 1: Massive blood clots in intestines from a cow that was diagnosed with HBS.

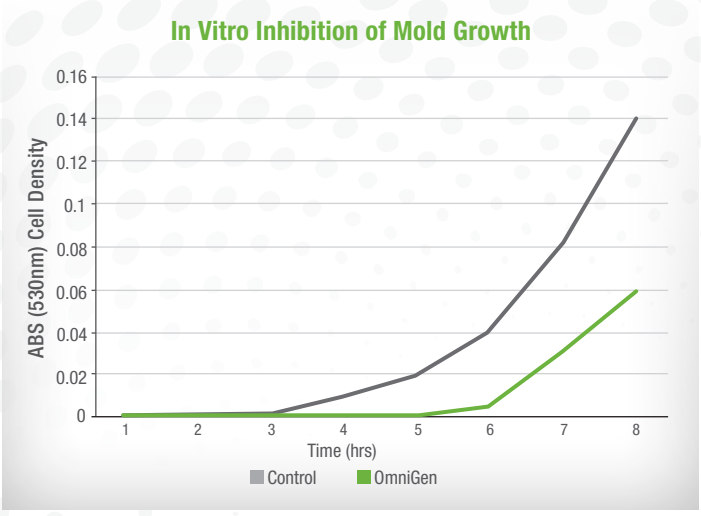


Figure 2: In vitro inhibition of mold growth.

TMR was inoculated with AF. The growth of AF was retarded for more than five hours after inoculation in the TMR containing OmniGen.


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Table 1

| Cause of Death | Number of samples | Number *C. perfringens* Type A positive | Number *A. fumigatus* positive |
|---|---|---|---|
| HBS | 16 | 14 | 13 |
| Other GI Tract Issues | 9 | 6 | 0 |

Table 2

| | Control Feeding Period (no OmniGen) | | OmniGen Feeding Period | |
|---|---|---|---|---|
| Issues | Total Cases | Cases/Month | Total Cases | Cases/Month |
| HBS | 14 | 2.5 | 2 | 0.2 |
| Mastitis | 41 | 7.3 | 18 | 2.1 |
| Dead Cows | 46 | 8.2 | 29 | 3.5 |

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