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## Information Sheet - Abomasal Bloat



### *Definition.*

Abomasal bloat is defined as distention of abomasum with gas produced by fermentation of milk in abomasum of young ruminants especially artificially reared lambs fed large volumes of warm milk infrequently.

### *General Information.*

For the first two weeks of life, the lamb is essentially monogastric with a stomach, the abomasum, to digest milk and its components. With the consumption of more dry feed and water, the rumen begins to develop and becomes more important.

The abomasum accounts for approximately 70% of entire stomach volume at birth. Within 8 weeks the rumen has increased in size and function and the abomasum now provides 50% of the total stomach volume. At maturity the abomasum accounts for less than 10% of the total stomach volume, while the rumen, reticulum and omasum make up the remainder.

Milk Replacer mixed to the manufacturers directions is cooled to body temperature and fed to lambs and kids who are artificially reared. In the majority of cases there will be no problem but occasionally when circumstances are favourable abomasal bloat will occur. Approximately 75% of all abomasal bloat cases die.

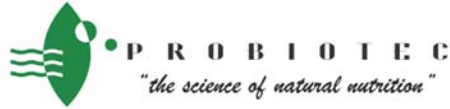
### *Description and Symptoms.*

Abomasal bloat is a sporadic disorder of young pre-ruminants. This disease is characterised by the rapid onset of abdominal distention, depressed attitude, lethargy, and occasional signs of colic. Affected animals may also be seen to grind their teeth and salivate.

Abomasal bloat in pre-ruminant livestock is often rapidly progressive and life threatening. Animals can bloat due to a variety of reasons. However, the common thread through all bloat cases is production of gases by organisms in the abomasum. This gas cannot escape. Organisms and not necessarily pathogenic ones, produce the gas that causes bloat.

The production of this gas causes severe distention that compresses the abdominal and thoracic organs including the heart and lungs along with the blood vessels that lead to them. The results are asphyxiation and heart failure. The abomasum of the affected pre-ruminant usually becomes grossly distended within 30 minutes of feeding with death occurring within a short time after the distention becomes obvious.

At post-mortem the abomasum is grossly distended and may have ruptured. The rupture may have occurred prior to, or after death. There are reddish areas in the wall and the rupture often occurs at these sites. Under a microscope these sections show small packets of



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bacteria including *Sarcina* and Clostridial species which are common with bloat but virtually never seen otherwise.

The processes involved in abomasal bloat are still not completely understood.

### *Causes:*

Abomasal bloat occurs in pre ruminants including lambs and kid goats being fed milk replacer. The cause(s) of abomasal bloat are not fully understood and there are a number of factors that have been seen to be involved. These factors include bacterial infection of the abomasal wall, lack of immunity from lack of or no colostrum, ingestion of foreign bodies such as wool, coarse plants, and bedding material as well as vitamin and mineral deficiencies. Other causes include changes in weather patterns, feeding milk too fast, poor milk hygiene, intermittent feeding of large volumes of milk, and cool milk temperature are considered to be potential contributory factors.

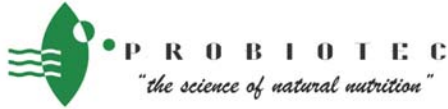
Overeating or abrupt diet changes tend to produce indigestion that slows gut movement, providing sugars, proteins, and lack of oxygen needed for rapid growth of bacteria. The common thread seems to be ingestion of a larger than ideal milk meal containing high levels of easily digestible carbohydrates and protein. This may result in a slowing of stomach emptying, which then enables the bacteria to ferment the milk and create gas.

Given the multitude of contributory factors proposed to date, it is possible that this disease occurs when multiple factors occur together.

Bacteria such as *Clostridium perfringens* type A and species of *Sarcina* have been identified in the abomasum of affected animals.

The usual history of a lamb being killed by bloat is that the lamb was feed large volumes of milk replacer two or three times a day. The milk replacer was mixed according to the manufacturers directions and fed at approximately body temperature. Within 30 minutes the abdomen was bloated.

These bacteria are known to be fermenters and can multiply across a wide range of conditions in the abomasum. A large quantity of warm milk arriving in the abomasum provides an excellent medium for the rapid multiplication of these bacteria. As they multiply, sugars in the milk are fermented with excess gas production. At the same time the stomach contents become more acidic to the detriment of other bacteria. As the gas cannot escape, it bloats the abomasum.



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### *Treatment.*

Once abomasal bloat is visible there are virtually no successful treatments.

Occasionally a lamb has been saved by relieving the bloat with a needle inserted into the abomasum through the distended right flank of the animal to release some of the gas. A veterinarian or a trained person should carry out this procedure.

Attempts to release the gas using a stomach tube usually prove to be unsuccessful as it is very difficult to insert the tube into the abomasum.

The best treatment for abomasal bloat is prevention.

### *Prevention.*

As mentioned previously, prevention is the best cure for abomasal bloat. Management practises can have a huge influence on prevention.

By ensuring that the following management practices are carefully adhered to the animal is provided with the best chance of avoiding abomasal bloat.

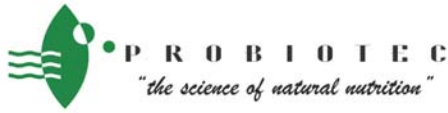
*Colostrum Management:* Ensuring that the new born lamb or kid receives an adequate supply of high quality colostrum within 24 hours is the single most important factor in preparing the animal to deal with the disease challenges it will face in the first few weeks of life.

*Feeding time:* Feed at the same time each day. Variable feeding times can cause young animals to become very hungry which results in the animal eating and drinking very quickly and often overeating, leading to changes in digestion. Feed volume and feed types should also be consistent with any changes being made gradually. Avoid sudden changes.

*Feeding Rates:* Ensure that the powder is mixed according to the manufacturers directions with the correct powder to water ratio. Diluted replacer could contribute to gorging (especially when lamb feeders are used) as the animal tries to compensate for lack of nutrients. ***As a rule of thumb the more frequently small meals are fed the better.***

*Mixing:* Ensure proper mixing of milk replacer following the manufacturers directions closely. Lumps can contribute to abomasal bloat problems.

*Milk Temperature:* Milk should be fed at body temperature. Animals fed cooled or cold milk replacer have higher incidence of bloat if Sarcina bacteria is not present. In situations where Sarcina has been identified the feeding of cold milk replacer (4°C) will help to contain the growth rate of this bacteria reducing the incidence of abomasal bloat. Ensure that any leftover milk replacer is stored in hygienic cold conditions.



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*Feeding Equipment:* All equipment especially equipment used to feed the milk should be cleaned and sterilised before each use to prevent the growth of bloat and scour causing organisms. Feeding equipment should also be in good condition. Do not cut the ends of nipples so lambs can drink faster or use older nipples that have large holes.

*Stress:* Stress causes physiological and behavioural responses. Management and environmental changes often lead to stress. Vaccination, feed and housing changes are routine stressors that most young animals are subjected to within a very short period of time. These stresses accompanied by changes in weather can have a significant effect on health and nutrition and should be reduced as much as possible.

*Health Status:* The overall health status of the young animal can affect its predisposition towards health challenges. An animal in poor health may be far more likely to develop the digestive conditions most conducive to bloat.

*Robotic and Automated Feeding:* Ensure that the unit mixes milk replacer to manufacturers directions, that milk replacer is fed at body temperature, and that the machines cleaning routine is adequate.

While these management practises may not prevent abomasal bloat in every circumstance strict adherence to the guidelines provided will ensure that you have the best chance of preventing abomasal bloat.

For Further information on any of the points mentioned above contact your Palastart representative on **1800 067 919**.

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