



MANAGEMENT

Pregnancy Toxemia (Ketosis) in Ewes and Does

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Quick Facts...

Pregnancy toxemia in sheep and goats is also known as pregnancy disease, lambing sickness and twin-lamb/kid disease.

The principal cause of pregnancy toxemia is low blood sugar (glucose).

Onset of the disease is often triggered by one of several types of stress including nutritional or inclement weather.

The disease is most prevalent in ewes and does carrying two or more lambs or kids. The disease also affects ewes and does that are extremely fat or excessively thin.

The best preventive measure is increased feeding of high energy concentrates and grains during the last month of pregnancy.

Occurrence and Causes

Pregnancy toxemia in sheep and goats has also been called ketosis, lambing/kidding sickness, pregnancy disease and twin-lamb/kid disease. It occurs in all parts of the world and is an often fatal disease occurring only during the last month of pregnancy. Death occurs in two to 10 days in about 80 percent of the cases. It most often affects ewes/does pregnant with twins or triplets and is characterized by low blood sugar (glucose). Economic losses because of the disease have been considerable and it is the most commonly occurring metabolic disease of sheep and goats.

It is generally accepted that the basic cause of pregnancy toxemia is a disturbance of carbohydrate or sugar metabolism. In earlier phases of the disease, blood glucose concentrations are less than 30 and may be as low as 10 mg/100 ml (normal 40-60). Blood ketone bodies, on the other hand, are usually greater than 15 and occasionally may be as high as 80 mg/100 ml (normal 1-4). The free fatty acid content of the blood plasma also is increased, meaning that body fat is being broken down and used for energy.

Since glucose is essential for proper functioning of the brain, a deficiency of glucose will result in nervous dysfunction and eventually coma and death. Glucose is also required for the muscles during exercise, but one of its greatest uses is by the fetuses. The growing fetuses continually remove large quantities of glucose and amino acids for their growth and energy requirements. Furthermore, the problem of supplying glucose seems great in that sheep/goats and other ruminants do not absorb much glucose from the diet and, instead, glucose has to be manufactured in the liver from other compounds.

Contributing Factors

The factors affecting the onset and progress of this disturbed metabolism are varied but for convenience they may be grouped into two general categories: 1) nutrition and management; 2) metabolism.

On a nutritional and management basis, pregnancy toxemia can be classified and sometimes even experimentally induced by 1) a chronic under-nourishment or underfeeding during pregnancy; 2) a short but nearly complete fast in well nourished sheep in association with environmental or psychological stress. These two forms of the disease also have been referred to as a 1) under nutrition (chronic) syndrome; 2) stress (acute) syndrome, respectively. The second form occurs in association with climatic stresses, such as heavy snow or rain, with psychological stresses, such as transport on foot or by truck, or with other stresses, such as an outbreak of a minor disease.

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In practice, an inadequate plane of nutrition is probably the most common factor in rendering ewes susceptible, but stress or a short period of going without feed frequently is the trigger for initiation of the disease.

Nutrition as Prevention

One major factor in the nutrition of the pregnant ewe/doe is that of the unborn lamb/kid. The gestation period in sheep/goats is short as compared to many other animals and the fetal demand for nutrients and glucose is at its greatest during the last two months of pregnancy. In fact, about 80 percent of the growth of the fetus occurs during the last six weeks of pregnancy; if twins are present, the increase in total weight is considerable.



Although much is yet to be learned about pregnancy toxemia, the incident of the disease can be minimized by careful management and proper nutrition. The total metabolic rate increases by at least 50 percent during late pregnancy. It has been shown that late-pregnant ewes/goats require about 50 percent more feed if bearing a single lamb and about 75 percent if carrying twins. The increased amount of feed, however, sometimes exceeds the sheep's digestive capacity unless grain is substituted for part of the hay. Multiple fetuses will tend to crowd the animals digestive system therefore limiting intake, this is where concentrates can help.

One pound of corn or the equivalent of high energy concentrate should be fed daily during the last six weeks of pregnancy.

Affected ewes stand apart from others in the flock, walk unsteadily, appear dull, and are usually off feed. Vision may be impaired, and they show little fear of humans or dogs. Blindness often results, and eventually there can be convulsions, grinding of the teeth, labored respiration and usually a mucous discharge from the nose. The mortality rate is about 80 percent, with death usually occurring in from two to 10 days. A shock-like state eventually occurs.

Pregnant ewes/goats should be in medium condition and not fat; body condition 3.5. During the first half of pregnancy, excessive fat should be reduced and weight gains should be allowed only during the six weeks before lambing/kidding. Overly fat ewes/does seem more susceptible to the stress syndrome of pregnancy toxemia than are other ewes/does. Late-pregnant ewes/does should be treated with considerable care at all times to minimize both physical and psychological stresses. Feed should never be withheld and transportation avoided if possible.

Treatment of pregnancy toxemia in ewes/does other than feeding concentrates might include; oral propylene glycol or corn syrup are quick sources of energy and should be given at the rate of 200 ml four-times daily along with 3 to 4 liters of an electrolyte solution designed for dehydration in livestock.