



## Ketosis or Pregnancy Toxemia in the Doe

By Jackie Nix

Pregnancy toxemia, also known as ketosis, is a metabolic disease that occurs in late pregnancy. It is most prevalent in does carrying two or more kids or in very fat does. Ketosis is caused by a disturbance in carbohydrate usage in the doe. As a doe's pregnancy progresses, the energy demands of her body increase. At the same time, the capacity of her rumen shrinks since growing kids take up more and more space inside, leaving less space for the rumen. This combination can result in the doe not receiving enough carbohydrates (energy) through her diet. As a result she will have to resort to breaking down her own fat to provide energy for her growing kids. If this occurs too quickly without adequate carbohydrates in the diet, ketone bodies (a toxic by-product of fat breakdown) are released into the bloodstream. When this occurs too rapidly the doe's body cannot detoxify the ketones fast enough, thus, ketosis or pregnancy toxemia results. Ketosis can also occur when a doe is too fat since fat also takes up room inside of the doe resulting a less space for the rumen to hold feed. Additionally, conditions that interrupt feed intake, such as storms, transportation or other diseases, can also induce this metabolic disease. Ketosis or pregnancy toxemia is most common in the last two weeks of pregnancy.

### *Symptoms:*

Does with ketosis are lethargic and have a poor appetite. They also tend to have poor muscle control and balance. Trembling when exercised and frequent urination are also symptoms. A classic symptom is sweet-smelling (ketotic) breath. Goats may also grind their teeth and moan. Eventually they lie down and are unable to rise. Death usually follows within a few days.

### *Treatment:*

Treatment of ketosis is relatively simple – administer a readily usable form of energy (usually glucose) and get the doe eating on her own again (usually with the help of anabolic steroids). Unfortunately, response to treatment is usually not very good; however, it is worth the effort of trying especially if the affected doe is valuable. Once pregnancy toxemia is in advanced stages (doe lying down unable to rise), no treatment is highly effective. A common treatment is oral administration of 3 to 4 oz. propylene glycol three times a day. Thiamin supplementation may also be suggested to help jump start carbohydrate metabolism. **Always consult with your veterinarian for advice on treatment options and dosage recommendations.** If she recovers sufficiently to begin eating on her own again, add an energy supplement (such as the **Sweetlix® Meat Maker® Roughage Balancer Tub** in addition to grain rations) to increase energy intake.

Cesarean section or induced abortion will usually lead to recovery of the doe if ketosis is caught early enough. If the kids are near term they may also be saved.

*Prevention:*

Since treatment is not generally effective, avoiding conditions that lead to ketosis is best. First, avoid over conditioning does in early pregnancy. This includes preventing does from becoming too fat and also slimming down does that are already fat. Next be sure to feed high-quality forages in addition to supplements, such as the **Sweetlix® Meat Maker® Roughage Balancer Tub**, that are very palatable during the last two months of pregnancy. This allows does to receive adequate energy even though rumen volume is decreased. If adequate and suitable feed is not available for the whole herd during late pregnancy, gentle driving can identify early cases of ketosis. Ketotic does can be recognized by the symptoms outlined above. These does can then be separated from the rest of the herd and given special care.

In summary, pregnancy toxemia or ketosis is a metabolic disease found mainly in fat does and does carrying multiple kids. Symptoms include lethargy and loss of appetite, eventually leading to coma and death. Unfortunately, treatment is not usually very effective; therefore, prevention is the best way of dealing with this disorder. Avoid over-conditioning does during pregnancy and be sure to feed high quality forages and supplements in the last trimester of pregnancy.

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*Updated December 2006*