

## **Recognizing and Treating Pregnancy Toxemia by Marilyn Grossman**

Pregnancy Toxemia is a very serious metabolic disorder that typically occurs in the last month of gestation, or in the first month after kidding (called ketosis after kidding). The seriousness of the illness is determined by how early the problem is detected. When the doe becomes recumbent, the prognosis is poor.

Toxemia is caused by an accumulation of poisons (ketones) which is a result of incomplete metabolism of fat. Metabolism of fat produces glucose. When the nutritional demand of the fetuses (or demand for milk production) for glucose cannot be met by the doe, large amounts of ketones are produced, and get into the blood stream, milk and urine. As the toxins accumulate, the doe becomes weaker, and if untreated, may die.

Several conditions can cause pregnancy toxemia. Over-conditioned animals have fat in their abdominal region. As the fetuses grow and take up space, there is not enough room in the gut for the doe to eat enough to meet the energy demands of the fetuses. Under-conditioned animals cannot meet their own energy needs, without the added burden of developing fetuses. Multiple fetuses can distort the energy balance. Mature does that are carrying three or four kids, or young does carrying two or more kids, often run into trouble. If a doe has another illness, such as pneumonia, mastitis, or lameness, she can develop secondary ketosis that can become the primary concern. Adequate exercise is of the utmost importance. Does that are too confined are prone to pregnancy toxemia. Exercise also develops good muscle tone, keeps the uterus flexible, and makes for easier kidding.

Early stage symptoms are lack of appetite - nibbling on their grain or hay, rather than eating with gusto. The does lay around more than is typical. As the toxemia develops, the doe may segregate herself from the herd. She may stop eating all together, and only get on her feet when coaxed. She may start to retain fluids in her lower limbs. Late stage symptoms are dullness in the eyes, a staggering or shakey walk, the rumen ceases to function, and they become recumbent.

Keto-Stix are available at the local pharmacy. They are a urine strip test, 50 in a bottle, and sell for around \$15. Keto-Stix is a good tool for determining if ketosis is indeed what you are dealing with, and the severity of the condition. The easiest way to get a urine sample is to go to the barn when the does are lying down. If the doe has been resting for awhile, and you make her stand, she will likely urinate soon after rising. Stick the strip in the urine, wait 15 seconds, then compare the color on the strip to the colors on the side of the bottle. Tan is clear, pink is slight, a brighter pink is moderate, and a beet color is extremely ketotic.

Adequate treatment requires meeting the glucose needs of the doe and her fetuses, thereby stopping the production of ketones. The aggressiveness of the treatment is determined by the stage of ketosis. Early stage toxemia can be treated with oral glucose additives. I've used brown sugar (never white) at the rate of ½ to 1 cup per day. Does will usually eat this out of your hand. You can add white kayro to a quart of warm water, again at the rate of ½ to 1 cup per day for the doe to drink. Keep the doe eating, give her whatever goodies you can find....tender twigs, dried maple leaves,

fruit, soda crackers. My goats respond to licorice, gummy bears, and cookies at times that regular goat-type foods do not interest them. Another thing they will often eat when sick is oatmeal, like you would make for yourself. Cook as usual, sweeten with Kayro or brown sugar, and give it to the doe warm. This gives the doe extra protein in addition to the glucose. Avoid bread as a food because of the extra yeast it contains. Also avoid molasses as a supplement as it can slow the rumen because it is difficult to digest. A less rich hay that is weedy or stemmy is often appealing to a sick doe. The main thing is to keep her eating so that the rumen continues to function. I set up a little goaty smorgasbord in the doe's sick pen, with a section of each kind of hay I have, and little containers of goodies. B-Complex injections can stimulate the appetite. Be careful, though. If you overdo it, B-Complex can also inhibit the body's ability to absorb calcium. Secondary acidosis can also be a complication. Offer the doe baking soda and soda crackers. Offering iodized table salt can get her drinking again.

A doe who is moderately to seriously ill will need propylene glycol. An initial dose of 2-4 oz is often adequate, depending on the severity. Propylene Glycol is hard on the fauna and flora of the gut, so use with care. The digestive tract is already in trouble. When giving glycol, it is a judgment call. Sometimes it needs administered twice a day at 4 oz per dose, other times 2 oz once a day is adequate. If the doe responds to treatment, but is still not herself, retreat, but only as long as it absolutely necessary. As soon as she is nearly normal again, you can revert to brown sugar or white kayro for added glucose.

Banamine can be very helpful. It is an anti-inflammatory, and a pain killer. If the doe begins to feel better, she will want to eat again. Banamine given every 12 hours, for a couple of days, should give enough relief to get the doe back on feed. Its best to give the banamine about an hour before feeding for the maximum effect of appetite stimulation.

Symptoms of toxemia rarely leave the doe completely until the doe kids. If she is within 10 days of parturition, you can induce labor. This is also hard on the doe, so you would want to be sure that she is strong enough to go through the labor process. If the doe is not in the 10 day safety zone, and since giving birth tends to relieve the toxemia, sometimes you must choose whether to save the doe or her kids.

A doe who has had a severe case of pregnancy toxemia often has lactational ketosis. This is somewhat easier to treat, as you no longer have fetuses to consider. The doe's milk production will decrease, thus reducing her body's demand for glucose. Dexamethazone is fast acting, and can be used for acute cases. Dexamethazone is a steroid which causes the body to manufacture its own glucose, and also gives pain relief. Steroids can cause abortion, dystocia, and retained placenta in a pregnant doe. Steroids should not be used on does with complicating conditions such as mastitis or pneumonia, as steroids can suppress the immune system.

Watch your does carefully in their last month of gestation. Know her habits and what is normal for her behavior. My herd queen is prone to pregnancy toxemia. I can tell that she is getting ready for a bout when she allows another goat to eat near her. Give her some brown sugar, and she is her hateful self again. Sometimes simple behavior changes can indicate the onset of pregnancy toxemia/ketosis. Be alert and avoid the more serious cases.