

Just what is ‘Pregnancy Toxemia’?

I am not a veterinarian but I am a registered, licensed veterinary technician who has raised goats off and on for the past 30 years. This article is intended to explain what is going on with pregnant does that develop a condition called pregnancy toxemia, how to possibly prevent it, diagnose it and what works in my herd (U-BAR Boers) to treat it.

Pregnancy toxemia is the same as preeclampsia in women. It's a metabolic disease of does that occurs in the final weeks of pregnancy (usually the last 1 to 3 weeks). Signs of the condition, due to low glucose (sugar) levels in the blood include a gradual decrease in food intake, depression or inactivity, down and unable to rise, tremors, wobbly gait, weakness, swelling of the feet, weight shifting, walking tenderly as if their feet hurt, and teeth grinding. If left untreated or not treated quickly enough, this condition can result in the death of the doe and her kids.

Pregnancy toxemia is typically seen in does carrying more than two kids. Does who are obese or very thin are also more at risk. The condition develops due to a reduced ability to consume enough food and obtain energy from their diet to meet the energy demands of the doe and her kids. 80% of the growth of the kids occurs during the last 6 weeks of gestation. As the doe's uterus enlarges, there is less room for her stomach (rumen) to fill with feed or there simply may be no way for the doe to eat enough. In order to meet the nutritional requirements of the growing kids and still maintain her own body, the doe's liver begins to convert stored fat into sugar for energy. This process (gluconeogenesis) is also what causes the ketone production and why it is critical that the doe be in good condition, not thin or obese and have plenty of good feed available in the last weeks prior to kidding.

If at all possible, an ultrasound at 45-50 days of pregnancy is highly recommended to identify does carrying more than two fetuses. This allows for more intensive management and observation of those that are more prone to the development of pregnancy toxemia. If ultra-sounding is not possible, pay particular attention to does that are overly large for their stage of gestation and monitor their eating habits and behavior closely. Make note of the ‘pecking order’ during feeding time and make sure some are not being pushed out and not receiving adequate nutrition.



Chances are good that a doe that looks like this is carrying more than just twins.

To have any chance of correcting the condition, paying close attention to the doe's activity, appetite, gait and overall attitude is key. I can't stress that early diagnosis is critical to managing this potential fatal condition. Once the doe is down and refuses to get up, or if ketone levels have been high and 2 days of drenching have not reduced ketone levels to moderate or low, the decision must be made to induce or have a C-Section performed. In some cases, the doe is more important to the breeding program than the kids and the kids may have to be sacrificed. It is *extremely* risky to not induce a doe with high ketone levels that is not responding to treatment. If left too long, the doe may lack sufficient energy to even deliver the kids and the risk of losing both the doe and the kids is great. It is also possible for the kids to die due to pregnancy toxemia and leave the doe with a potentially fatal infection called septicemia.

*Note: If the doe has had to be induced it is fairly common for her to experience a retained or incomplete passing of the placenta. Very small doses of oxytocin given every few hours can help with the problem sometimes but extreme caution must be exercised with this drug. You should consult your veterinarian if the doe does not pass the afterbirth within a few hours after kidding. Never attempt to assist removal of the placenta by pulling on it.

Preventing pregnancy toxemia involves four management goals.

- Show or obese does should lose excess weight and very thin does should be fed to gain some weight prior to breeding and all bred does should be maintained on a maintenance diet until the final month of pregnancy at which point their feed intake should be increased. Growing kids more than double a doe's nutritional requirement.
- There should be ample room for exercise (exercise is extremely important), and control of other conditions that might result in reduced feed intake or increased energy demand, such as parasitism, adequate shelter from bad weather or illness. You may also worm and vaccinate your does about 30 days prior to kidding. (I worm, boost the CDT vaccination and give Vitamins A,D,E and a BoSe injection 30 to 45 days prior to kidding.)
- During the last 3-4 weeks of pregnancy, monitor suspect does for the signs of pregnancy toxemia and test their urine daily using Ketostix. (As soon as a doe gets up, she will usually urinate, have the Ketostix ready and insert it into the urine stream, or catch some in a cup and dip the stick into it.) Separate the doe (put a buddy in with her if possible), increase feed intake, and begin drenching at the first sign of ketones. Worm or insure your does are free of parasites that can drain their energy resources.



Ketostix – can be purchased at any drug store or pharmacy

- Does confirmed carrying 3-4 fetuses or those showing ketones on the Ketostix should be offered continual access to a high energy feed during the last month of gestation. (Feed that contains *some* of the following corn, milo, barley, wheat or cottonseed meal, soybean hull pellets and the label reads 16% or more protein. I do not feed whole or 'just' cracked corn as it can lead to founder and other issues.) Prepared feed containing the additive Rumensin or Monensin can also be helpful as those ingredients increase feed utilization in the rumen. At 3 to 4 weeks prior to kidding, increase the feed amount and quality *gradually* so as not to upset the normal function of the rumen, which could also cause pregnancy toxemia.

Treating pregnancy toxemia.

Again, at the risk of sounding like a broken record, it cannot be stressed enough that diagnosing the early stages of pregnancy toxemia is key to the success of treating it. Have the Ketostix readily available, (an empty syringe case works well and is good to catch urine if you need to) and test suspect or multiple (more than 2 kids) does daily. Have the ingredients listed in the drench recipe below before kidding season arrives.



Dosing Syringe – Drencher (Different sizes available)

Fill syringe with drench, holding does head *slightly tilted* up, insert the metal end far back into the mouth between the cheek and the teeth and slowly depress syringe. Allow the doe to swallow often. (Do not try to administer this to a doe that has no swallowing reflex.) Note: Do not wear good clothes when administering this drench; you *will* be wearing some of it!

Pregnancy Toxemia Recipe: Equal parts of 50% dextrose, CMPK (best) or Calcium Gluconate, Nutridrench, or Goat Aid, Dyne, Propylene Glycol, Amino Acids (all can be ordered at most Veterinary/Farm/Ranch internet sites) and a bottle of Keep’N On made by Essentials. The Dyne tastes good to them and has a lot of great supportive ingredients. (You can use the Keep’N On bottle as a measuring bottle – as in a bottle of each ingredient.) It doesn’t matter what measurer you use, just mix equal parts of each. You can also add powdered electrolytes to their water if desired, just make sure they’ll drink something that tastes different.

CMPK drench has Calcium, Magnesium, Phosphorus and Potassium, all things a toxic doe can become deficient in.

Nutridrench has vitamins, minerals, dextrose and provides energy, nutritional support and stimulates the appetite. (It is also good for weak newborns.)

Propylene Glycol assists in the conversion of glucose into energy.

Amino Acids – Play an important role in nutrition and utilization.

Keep'N On – a mixture of supportive vitamins, minerals and provides energy.

Dyne – loaded with protein, fat and all vitamins. Plus the taste makes the drench more palatable.

If a doe's Ketostix test strip indicates **low** ketone levels (5 to 15 on the stick), usually about 60 cc's of the drench mixture given orally once a day via a drench gun is sufficient. Higher levels (40 or higher on the stick) giving 80 to 120 cc's 3 to 4 times daily is usually sufficient to bring down the ketone levels within a day. If multiple daily drenching's do not lower levels significantly and the stick does not show '**large**', but the doe is still eating and within 7 days of her due date, you can administer 1cc (IM) of dexamethasone daily for two days (to encourage development of the kids lungs) and then induce. If the doe continues to have 'large' readings on the Ketostix after two days of the drenching treatment, stops eating or appears weak, induction is no longer a matter of choice regardless of the stage of pregnancy.

At this point, the doe should be offered all the grain/good hay she will eat. The small dose of dexamethasone often improves the appetite and you can offer the doe a variety of treats (rose bush clippings, oak leaves, blackberry clippings, whatever is available for the season – beware of yard shrub clippings though, some are poisonous). It's just critical that they eat high carbohydrate foods and drink plenty of water.

Use 10 cc's of dexamethasone (IM) and 2 cc's Lutalyse (IM) to induce. Generally, the doe will kid within 24 to 48 hours. Continue to administer the drench during this period and 1-2 times daily for 2 days after kidding. Offer the doe a bucket of warm water with molasses after kidding. Keep a close eye on her after kidding to insure complete delivery of the afterbirth.

Wishing everyone the very best luck this coming kidding season.

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