

# PREVENTION OF “WATER BELLY” IN CATTLE - UROLITHIASIS

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**DEFINED-** Stones that form in the urethra or urinary canal of cattle. All livestock are susceptible (seen with goats, sheep and hogs too, even dogs and cats) but the problem occurs primarily in steers (and some bulls) because of the smaller diameter of their urethra. Since the animal can no longer pass urine, unbearable pain and suffering results, finally causing the urethra or the bladder to rupture, a fatal condition.

**SYMPTOMS-** Bawling with pain, digging or licking at the belly, switching the tail, and treading the hind feet. Frequent attempts to urinate, grating of the teeth. In the early stage there may be a bladder infection and some blood in the scanty urine, however, urinary obstruction quite often ensues causing a total blockage of urine flow. This either causes agonal death or the urinary system eventually ruptures. Then urine collects under the skin of the belly up to the chest. Toxemia and death ensue usually within 48 hours.

## **BASIC CAUSES-**

- 1) Urine is too concentrated, this is most often from water deprivation (frozen, empty or dirty tanks, too few tanks, drought, transportation, a or bad water). Can also occur in hot weather when animals may become more dehydrated and forages are also dry.
- 2) High intake of silicates or phosphate minerals. This is usually from forages that are too high in silicates or oxalates, or concentrated in feedlot concentrates.
- 3) Small diameter urethra, which can be from early castration.
- 4) Vitamin A deficiency, from poor forages.
- 5) Estrogen-bearing hormone implants or growth stimulants.

## **TWO KINDS OF STONES-** (easily diagnosed by a veterinarian or laboratory)

- 1) **SILICATE-** The most common stone for range cattle that are taking in high levels of silicate, estrogenic compounds or oxalate-bearing plants. A brownish, hard stone or crystal
- 2) **PHOSPHATE-** More common in feedlot cattle fed grain which is high in phosphorus causing an alkaline urine with excess phosphates and mucoproteins. These stones tend to be softer and almost mushy.

**PROGNOSIS:** This serious condition is almost 100% preventable, whereas treatment of blocked animals is expensive, difficult and has a poor prognosis. Close observation is critical as early diagnosis is the key. If caught early there are drugs that relax the urethra and can help the stone pass; sometimes the stone can be pushed back to the bladder or removed, however, surgery is frequently the option of last resort. Salvage surgery can be done, in which case the penis is amputated and a surgical urethral opening is

created. Emergency slaughter can be one option but must be done before the bladder ruptures. None of these options are very desirable.

### **THE PREVENTION PLAN:**

The GOOD NEWS is that this condition is almost 100% preventable and the prevention is cheap and easy. Sometimes it's as simple as saying that if livestock get all the water they need, of good quality and volume, you will never have the condition. Adding a good mineral premix, salt and vinegar (which is good to do anyway!) almost guarantees you will never have a problem. Here's the full plan...

1) PROVIDE GOOD QUALITY WATER. Rule out stray voltage, or other electrical contamination. Animals prefer water that is neither too hot nor too cold, 62-82 degrees being ideal. Always test well water for silicates, contaminants, or other palatability factors, which include organoleptic properties (odor and taste), physiochemical properties (pH, total dissolved solids, total dissolved oxygen and hardness), along with the presence of toxic compounds (heavy metals, toxic minerals, organophosphates and hydrocarbons), excess minerals or compounds (nitrates, sodium sulfates and iron) and bacteria and algae. One highly reputable source for complete testing is the National Testing Labs (440-449-2525). Remember that ground water is quite often contaminated and can be the source of many problems. Check who's upstream. Home-made tanks or tire tanks can also be the source of contamination.

2) KEEP WATER ALWAYS AVAILABLE- Livestock should not have to walk too far to drink. Use water heaters, good tank flow valves and more tanks per pasture. Make sure tanks refill quickly and that the water is warm (in winter) at least not frozen.

3) Add APPLE CIDER VINEGAR to the water. For the maintenance level add one cup per 10 gallons of water for maintenance, if there are already symptoms increase the ACV to 1-2 cups per gallon. You can also offer free-choice ACV mixed 50:50 with water and served in rubber tubs or other water containers. Adding a bit of MOLASSES will encourage consumption. Sick animals should be drenched with 8 oz of ACV.

4) Provide a good CALCIUM-PHOSPHORUS MINERAL PREMIX at all times free-choice. The ideal ratio is 2:1 which avoids excess phosphorus which could accumulate in the form of stones in the urine. Try to get at least 2 oz per head per day (feedlot animals can also be helped by adding ammonium chloride up to 2% of diet). Since Vitamin A deficiency is common in the winter, and since it is related to the formation of calculi make sure the mineral mix is a rich source of Vitamins A, D and E. A good mix will have between 800,000 and 1.2 million international units/pound of mix.

5) Provide LOOSE SALT in convenient mineral hoppers (lick blocks are too slow) and encourage consumption. Salt can be added to a ration up to 1-3%. Hay can also be sprayed with a salty brine (Make sure water is easily available though!) and salt can be mixed with a tasty creep feed in order to encourage consumption. Good salt intake helps the mineral balance but also encourages the drinking of more water.

6) AMMONIUM CHLORIDE- Can easily be added to the range mineral mixes for any animal in predisposing conditions which includes drought conditions, high desert forages full of silica and oxalates, hot weather or when there are problems getting good quality water. This product acidifies the urine causing any crystals to dissolve.

7) If the forages are HIGH SILICATES/OXALATES use this primarily for the cow herd but not the steers. If that is impossible provide stored forages that are sweeter with a lower silicate level. Avoid high levels of legumes, especially alfalfa in the total feed intake. Grazing areas or hay with a super-abundance of any one plant could be a red flag for problems.

8) LATE CASTRATION IS IDEAL- Early castration leads to poor development of the urinary tract. The ideal age for castration of bull calves that will be prone to developing calculi is 6 months of age.

9) OBSERVE WINTER CATTLE CLOSELY, especially steers, carefully. Act quickly if you see symptoms. Get immediate care to save afflicted animals, and step up your prevention plan in the rest of the herd. If you see the symptoms beginning, even the early signs which include straining, frequent urination and even a humped back it's time to call in the professionals. In early cases the stones can be flushed out and ammonium chloride given which prevents expensive and painful surgical procedures or fatalities from ruptured urinary bladders.