

Are goats really just small cows?

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Abstract

It would be so easy to make the bovine the standard by which we judge all ruminants. Unfortunately, nothing in life is ever so simple. Yes, goats and cows have hair, four legs, and are ruminants. After that, the changes begin. In this talk, we will discuss both similarities and differences between cows and goats, with a bit of sheep information thrown in for good measure. There are many ways bovine veterinarians can easily cross over to the small ruminant world but a few words of caution will be helpful to stay out of trouble. The focus of this talk is production medicine based but we will include some pharmacologic differences, too.

Key words: goat, production, medicine

Background

The differences between cattle and goats are varied and surprising. In some instances, goats are strikingly similar to cattle. The differences can be subtle and easy to overlook. Goats are playful by nature. No one ever has labeled goats as beasts of burden. They are never stoic whereas cattle will tolerate poor conditions even under extreme stress. The simplest way to review behavior and physiology is to start big and then narrow the focus.

Goat verses cow eating behavior

Goats are considered browsers while cattle are grazers. This means that while cows will scoop up mouthfuls of feed or use their tongue to wrap and grab mouthfuls of grass or hay stems, goats use prehensile lips to carefully sort through leaves, grain kernels and anything else they do or do not want to consume. Moldy feed can be masked in a cattle diet and often is discovered by increased incidence of diarrhea, toxic indigestion and bloody gut syndrome. Goats will refuse to consume feeds with mold contamination. Grain pellets with a moldy ingredient will be left in the manger. This allows for a much simpler detection process regarding which feed ingredient is poor quality. Unfortunately, it also means that producers cannot buy cheap feed and expect positive results.

Goats can sort a TMR to the point that it is no longer a TMR. They have the ability to pick out ingredients one at a time. This means that the TMR is only serving the benefit of ease of feeding the goats. Goats will consume more hay stems in a TMR system, but they do tend to leave behind all feed that they have determined is unconsumable. Overcrowding in a TMR system does not work in any form since the first goats to the manger will pick out all the grain or concentrates from the diet and leave stems for the second wave of does. This often manifests as over-conditioned does in a pen with thin does with low milk production. It is critical to rule out that disease and lameness are not contributing these differences in body condition.

Metabolic differences

Goats and sheep develop periparturient hypocalcemia or “milk fever” just like cattle. They even act the same when they have it. There are a few important differences: 1) they tend to get

hypocalcaemia pre-partum in the close-up period (last 3 weeks of gestation), 2) post partum hypocalcemia generally presents as a lack of milk production, and 3) calcium gluconate should never be given IV; give it SQ.

Goats and sheep develop fatty liver just like cows, but it manifests in the prepartum period instead of fresh period. We call it pregnancy toxemia. The treatment is the same for goats and sheep as it is for cattle. Early hepatic lipidosis is treated with propylene glycol orally. More severe cases require IV fluids with dextrose and calcium gluconate SQ. The typical presentation for pregnancy toxemia is an anorectic doe or ewe with inadequate nutrition carrying a large litter.

Disease differences

Small ruminants are well adapted to their disease-causing organisms. That means they get them and keep them for life. You almost don't have to know what the organism is. Plan on never curing it and then use your best calf-raising skills to teach the producer how to keep the next generation from contracting the disease. Sheep and goats can be in production by 12 months of age vs 2 years for a heifer. With a kidding rate of 200%, it is possible to turn a whole herd over in 3 to 4 years, when culling is factored in.

Goats are uniquely placed in terms of disease susceptibility. Sheep and cattle both have a species-specific strain of ringworm and Johne's disease. Goats have the ability to become clinically infected with both strains of these organisms. Conversely, cattle and goats can asymptotically carry Blue-tongue virus (BTV) and sheep will often become clinically ill and possibly die from BTV. Internal parasites such as *Haemonchus* spp and *Ostertagia* spp can move between cattle, goats and sheep. Goats with lungworm infections can exhibit anaphylaxis when treated with levamisole. This appears to be unique to goats.

With regards to milk quality and udder health, the *Mycoplasma* spp. we tend to see in goats have a low probability of causing mastitis and are not generally contagious in the milk barn. Respiratory spread is the main route of transmission with pneumonia and severe infectious arthritis being the most common symptomologies. Conversely, *Staphylococcus aureus* presents in a similar pattern in cows, goats and sheep. Transmission, disease expression, prevention and control are the same across species.

Reproduction

Dairy goats tend to be pen bred via natural service. It is uncommon for goat dairies to utilize AI in large amounts. Doing a herd check for a goat dairy entails sizing all pregnancies via transabdominal ultrasound.

If you know how to palpate cows, you can roughly ultrasound diagnose pregnancies in small ruminants. When the screen is set to 1 cm measurements, the size of the fetus is “similar” to that which you would palpate. In other words, a hamster-size

fetus is still 60 days. This rule holds from 34-65 days at which point it is no longer accurate. After 60 days, high multiples vs singles vs breed cause a high amount of variation in fetal size. Sheep tend to run larger by 2 days due to the shorter gestation length, also. Most clients will be comfortable with 3-, 3.5-, 4-month estimates when scanning larger pregnancies. Many ultrasounds have crown-rump length and biparietal diameter measurements programmed into them already. You can use the built-in preset parameters to become more accurate. Keep in mind that it would not be useful to go to a cow dairy and simply call cow “pregnant” or “open”. Goat dairies also need to have accurate due dates to properly dry off and move does to a close-up ration.

A unique difference between goats and cattle or sheep is the ability to form a “false pregnancy” or hydrometra. This occurs most commonly when a doe ovulates, does not conceive, and then goes out of seasonal estrous. The persistent corpus luteum can cause development of a significant amount of uterine fluid. It is not uncommon to ultrasound does in late spring and diagnose 25-50% false pregnancies. This condition is resolved with a prostaglandin injection and does not affect future pregnancies. If untreated, these does will continue to develop fluid and produce a diminishing amount of milk. It is important to treat these cases at the time of diagnosis.

Goats can have much longer lactations than cattle. For an annual lactation (305 days with a 60-day dry period), the voluntary waiting period is seven months. Some dairies have does milking over 1,000 days with good production. It is not advisable to breed long-lactation does if they are producing well since they will have difficulty drying off, and the subsequent lactation will

be poor. The preferred method is to select does for rebreeding based on declining milk production and cull any does with low milk if they are under 6 months fresh and producing poorly. Does with lactations over 900 days will often have poor successive lactations, and it is best to cull these does when milk drops below the breakeven production level.

Conclusions

Understanding animal behavior is a critical component when assessing animal health, well-being and stress. To make accurate recommendations to producers, a veterinary consultant needs a competent understanding of the needs of the animals in any population. Goats are gregarious, social animals by nature. Appreciating differences in feeding behavior will help when using cattle knowledge to make recommendations regarding management of feed systems. Disease transmission is similar across ruminant species and veterinarians can provide excellent biosecurity and herd health recommendations by utilizing cattle knowledge with goat producers. Finally, the most common bovine veterinarian mistake regarding goat reproduction is to set the voluntary waiting period for 60 days! Don't forget that goats have a 150-day gestation. Ultimately, a dairy is a dairy. The same goals apply to any dairy operation. A little knowledge of the nuance goes a long way but a competent cattle veterinarian is 90% of the way toward being a competent small ruminant veterinarian.

