



DAIRY GOAT ABORTIONS

WHAT TO DO WHEN THE STORM HITS

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A bortions in small ruminants are an important disease process that can have devastating impacts on a dairy goat herd. In some cases, we can see up to 50% or more of pregnant does abort, leaving producers with significant production losses, health concerns and even increased risk for disease in dairy workers. In this article we will try and address some of the key diseases, important diagnostic options and some universally helpful interventions.

Causes of abortion in dairy goats

Abortions can be caused by a wide variety of infectious and non-infectious processes. In general, non-infectious abortions are more sporadic in their occurrence and often associated with “bullying” of does by other animals or fetal deformities that lead to death prior to complete maturation. Sporadic abortions can be observed in up to 3-5% of a herd on an annual basis without causing alarm, assuming that those randomly spread through the kidding season. Less frequently, severe nutritional deficiencies (iodine or goiter) or nutritional toxicities (cop-

per, sulfur) can present as abortion storms, but in such cases there are generally other concurrent evidence of nutritional problems in the herd.

The majority of late-term abortion storms that are investigated are associated with an infectious agent. In US dairy goat populations Toxoplasmosis, Chlamydia (previously called Chlamydia), Coxiellosis (Q-fever), and Campylobacter are the most commonly identified organisms, however Listeria, Salmonella, viral diseases (Cache Valley and Border disease) can also be identified. Unfortunately, these organisms all pose to unique

challenges with diagnosis, therefore good specimen collection (see section below of diagnostics) and patience are often required to arrive at a definitive diagnosis. It is important to point out at this time that many of these organisms can also cause disease in humans ranging from mild fevers and flu like symptoms to more severe diarrhea. If farm workers exhibit any unusual symptoms of disease after being exposed to aborting dairy goats, it is important for them to consult with their health care provider and make sure to mention the potential exposure to aborted materials. Pregnant women may be at risk of harm to the human fetus from diseases like Q fever or toxoplasmosis. Most of these diseases in humans can be treated effectively if diagnosed early.

Diagnostic testing

Diagnostic testing of fetuses, placenta and serum from the dam is essential for determining the cause of abortion. Diagnostic testing will take several days to a week before results are returned, therefore implementation of the universal recommendations listed in the call out box should be immediately performed. It is recommended that you work with your local veterinarian to develop a diagnostic strategy, make sure you collect



Photo on left shows the rubber like caruncles found in the bedding of does post abortion. ▲ Photo on right shows a close up of these caruncle.

the appropriate samples and make sure that they are properly packaged for shipping. These samples are consider biohazardous, so proper packaging before mailing is necessary to protect the health of those that might be exposed during shipping. In general, a large piece of placenta (including cotyledons) and the full aborted fetus are ideal specimens if available and able to be packaged safely. In our experience, having a large piece of placenta almost doubles the likelihood of a definitive diagnosis, so make a good effort to get some collected. In some cases, serologic testing of the dam's blood can provide evidence of exposure to specific pathogens. Ideally samples should not be frozen prior to diagnostics, however in cold climates the fetus and placenta may be frozen when it is observed, and these can still serve as reasonable diagnostic samples albeit not all test will be valid after freezing. Inform the diagnostic laboratory if the samples were frozen at any point and they will help determine appropriate testing options. It should be noted that it is not uncommon to need multiple submissions of diagnostic samples from multiple aborting animals to arrive at a definitive diagnosis. So be persistent and work with your veterinarian to continue to submit samples when available. Unfortunately, without repeated sample submission a reasonable number of cases fail to determine a definitive diagnosis.

Treatment

Unfortunately, the majority of

these abortion agents do not respond well to antibiotic treatment. You should work with your herd veterinarian to determine if treatment is warranted, and if so what treatment to use. While traditionally oral tetracycline products have been used in feed to control small ruminant abortions, current research data in controlled trials does not demonstrate any efficacy of these approaches and milk residue issues in dairy goats do not warrant their consideration. Several of the potential abortion causes are not bacteria and therefore are not killed by antibiotics.

Progression and prevention

Once an abortion storm has started, it is often difficult to change the course of the storm in that kidding season. The universal interventions highlighted in the call out box provide the best options for slowing transmission and progression. On a positive note, the development of immunity in the herd often significantly decreases the risk of abortions during the next kidding, so generally repeated abortion storms in consecutive years associated with the same organism are rare.

Biosecurity provides the best assurance of prevention of abortions, as well as other health concerns. Animals from a known herd with abortions should not be introduced into a herd with pregnant does. Clothing and equipment should be farm specific and not shared between herds where it might transmit dis-

ease. Vaccines do exist for some of these abortion organisms and may decrease severity of the abortion storm, but rarely prove 100% effective as preventing abortions.

A new type of abortion to be watching for

In recent years researchers at the University of California, Davis and Iowa State University have identified a unique abortion presentation in goats. Unlike most of the abortions discussed above that occur in later gestation, these, may also occur closer to mid-gestation. The consistent finding in these abortions is that the caruncle (portion of uterus where the placenta attaches to) becomes “rubbery” due to deposition of protein (amyloid) in the tissue. Producers are able to recognize these abortions due to the does passing “rubber-like” caruncles into the bedding following the abortion. The picture shows what these look like in the bedding. If you have observed these in your does following abortion our researchers would be interested in learning more. Please email me (pplummer@iastate.edu) and Dr. Joan Dean Rowe (jdrowe@ucd.edu) with details.

Universal recommendations for management of abortions in dairy goats

Recognize that many diseases that cause abortions in goats can be transmitted to humans. Take appropriate precautions (wearing gloves, washing hands, safe handling etc) when handling aborted material. Wearing a face mask, face shield or N95 mask can decrease the risk of aborted materials splashing in the face or mouth and can provide protection against some aerosol transmitted organisms (N95 only). It is recommended that you consult with your health care provider or occupational health officials for what type of personal protective equipment should be provided for employees.

Do not eat or drink in the barn

Never store diagnostic samples

from aborted animals in refrigerators or freezers used for human food

Follow local regulatory requirements for proper disposal of animal tissues. Incineration, composting, or deep burial can be used if allowed in local ordinances. If you have questions on what is allowed contact your state department of environmental stewardship.

Prevent livestock guard dogs, cats and other barn pets from consuming the aborted material or moving the aborted material to other pens or barns.

Farm workers should wear clothing designated for the barn only and should change and shower before entering their house or apartment. Many of these organisms can be carried on clothing, boots, and hats allowing exposure to family and children.

Aborted material (fetus, uterine fluids, placenta) should be removed from the pens as quickly as possible while taking the appropriate safety precautions. These tissues can contain massive numbers of infectious agents and pose a significant means of transmission when licked or eaten by other inquisitive does in the pen. A pitch fork can be used to remove bedding material that is wet with uterine fluids.

Maintain segregation of animals. DO NOT move aborted doe out of pen into another pen of animals as she will continue to shed abortion agents into the environment. Likewise, all does in the pen with the abortion should be considered “already exposed” and moving them into other pens only increases likelihood of spreading the abortion. If absolutely necessary to move animals they should only be moved to pens that contain no other pregnant does and have no fence line or close contact.

Discuss diagnostic testing with your veterinarian.

Report any unusual clinical symptoms in humans to their health care provided and inform them of possible goat abortion exposure. ■