Zoonotic Diseases in Sheep and Goats

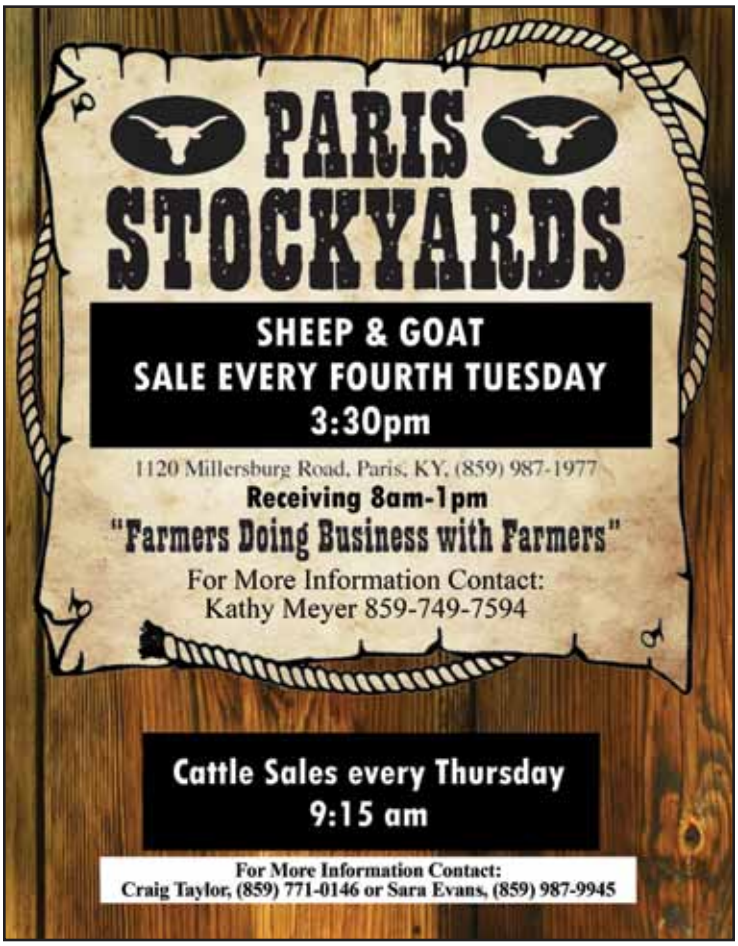
Dr. Beth Johnson

Zoonotic diseases are those diseases that can be transmitted to humans from animals. Some of the diseases are benign and very minor while others can be life threatening. It is important to recognize the zoonotic diseases and take appropriate precautions to prevent exposure to the disease causing agents. The diseases can be divided into categories causing skin diseases, eye diseases, gastrointestinal diseases and abortifacient diseases. Some of the agents are multifactorial and can cause eye disease and abortions for example.

SKIN ZOONOTIC DISEASES

DERMATOPHYTOSIS: "RINGWORM"

Contrary to what many think, this disease is not caused by a worm, it is caused by a fungus, *Trichophyton verrucosum*. It can infect cattle, sheep, goats and humans. It is usually characterized by clearly demarcated, 1 - 10 cm^2 areas of hair loss, covered by dry wart-like crusts on the ears, face and neck. Some lesions can appear on the trunk and legs of affected animals especially in show animals that have been sheared. The lesions do not appear to cause excessive itching, but in humans the lesions can be pruritic. In humans, the lesions appear as a raised lesion with a "red ring" around the lesion. Where the disease has been seen in sheared animals, it has been characterized by raised 4 - 6 cm diameter scabs over the wool/hair-covered parts of the body. When the matted wool/hair covering the lesions is removed, the underlying skin appears inflamed and bleeds readily. This is what we often see in show lambs and kids when they are sheared down. Slick shearing, repetitive washing and stress make show animals more susceptible to infection by this organism. There are several lotions, shampoos and sprays available for treatment of this disease and producers who become infected should contact their dermatologist for treatment advice before the disease becomes advanced.



CONTAGIOUS ECTHYMA – "ORF, SOREMOUTH"

Contagious ecthyma is a vesicular disease caused by a virus in the poxvirus group. It causes an infectious, contagious skin inflammation that can infect sheep, goats and humans. It is characterized by scab formation on the mouth, nostrils, eyes and other areas that don't have wool or hair, such as the udder and vulva. The virus is very resistant and remains infectious for more than 12 years in the dried scabs that fall off in the pasture or barn.

Lesions often occur first on the gum line as small, raised, red areas that become blisters. These blisters eventually rupture and combine into large scabs. Lesions are most common on the mouth of lambs/kids and on the udders of ewes/does. Secondary bacterial infection is common. After one to four weeks, the scabs fall off, and the lesions heal with no scarring.

Humans can contract contagious ecthyma. For people, the lesions usually are solitary and appear on the hands, arms or face. Lesions appear as scabs shaped like doughnuts. The lesions heal in a few weeks without scarring. When handling animals with soremouth, it is highly recommended to wear gloves and practice good sanitation.

Vaccination against soremouth can be performed by utilizing a commercial live virus vaccine. A small area is abraded on the inside thigh of kids/lambs and applying a small drop of the vaccine on the abrasion. DO NOT VACCINATE YOUR ANIMALS IF YOU DO NOT HAVE THIS DISEASE IN YOUR HERD!

ABORTION DISEASES

There are primarily 4 diseases that cause abortions in sheep and goats and are possible zoonotic diseases especially to pregnant women. It is highly recommended that pregnant women use extreme caution in the lambing/kidding barns.

CHLAMYDIA

Chlamydia is the most common cause of abortion in ewes. It is transmitted from aborting sheep to other susceptible females through fetal membranes. Ewe lambs are usually the most susceptible on farms where the organism is present. The bacteria which causes enzootic abortions in ewes is called *Chlamydophila abortus (old name Chlamydia psittaci).. Chylamydia* causes abortion during the last month of pregnancy and may also result in the birth of lambs that die shortly after birth.

The organism may also cause pneumonia in young lambs, but the chlamydia species that causes abortion is not associated with conjunctivitis or arthritis. Chlamydia abortions can usually be stopped or reduced by treating the entire flock with oral or injectable tetracycline. A vaccine is available. It should be administered 60 days

prior to breeding and repeated in 30 days, then annually just prior to breeding.

CAMPYLOBACTER

Campylobacterosis is a common cause of abortion in ewes. Abortion during the last month of pregnancy, stillborn lambs, and the birth of weak lambs are common signs of Campylobacter abortion. The organisms which cause abortion are *Campylobacter jejuni* or *Campylobacter fetus*. Ewes are infected by oral ingestion of infected fetal membranes. The incubation period from the time of infection and abortion is only two weeks. Vaccination can be effective in the face of an outbreak.

Feeding of tetracycline has also been shown to be effective. Disease spread can be prevented by isolating the aborting ewe, disposal of the fetuses and membranes and disinfecting the affected area. Infected ewes usually recover after aborting and are immune to re-infection. A vaccine is available. It should be administered prior to breeding and repeated in 60 to 90 days, then annually.

TOXOPLASMOSIS

Toxoplasmosis is a common cause of abortion in does and ewes. It is caused by *Toxoplasma gondii*, a protozoan parasite which infects cats. Toxoplasma abortion in does/ewes follows ingestion of feed or water that has been contaminated with oocyte-laden cat feces. The organism migrates to the placenta and fetuses causing their death and expulsion. Ewes and does will abort during the last month of pregnancy or give birth to dead or weak lambs/kids that usually die from starvation.

Infection in the first two months of gestation results in embryonic death and re-absorption. There is some evidence that Rumensin® and Deccox® will partially prevent toxoplasmosis in pregnant ewes. Limiting cat populations or utilizing older cats in a barn and preventing contamination of feed and water with cat feces will help to prevent disease outbreaks.

Q FEVER

Q Fever is a disease caused by the bacterium, *Coxiella burnetti*. Sheep, goats, and cattle are most likely to get Q fever. The most common sign of Q fever is abortion during late pregnancy. However, most animals do not show any signs of illness. Animals get Q fever through contact with body fluids or secretions. Q fever is zoonotic (transmissible to people).

Infection begins with inhalation of a spore-like small cell variant and from contact with milk, urine, feces, vaginal mucus or semen of infected animals. Incubation period is usually 2-3 weeks. In humans, the most common symptom is mild flu-like symptoms with abrupt onset of fever, malaise, profuse perspiration, severe headache, muscle pain, joint pain, loss of appetite, upper respiratory problems, dry cough, pleuritic pain, chills, confusion and gastrointestinal symptoms, such as nausea, vomiting, and diarrhea. There are more serious disease manifestations that may result from infection by Coxiella burnetti including endocarditis or atypical pneumonia so it is very important to consult with a physician if you suspect you have been infected with this organism.

Animals can become persistent carriers of this disease and continue to infect other animals in the herd so one may want to do serological testing of their herd to determine which animals have titers to Coxiella burnetti. It is easily treated by antibiotics in both humans and animals, but in immunocompromised individuals it may be a major concern.

Gastrointestinal Diseases

There are several causative agents that may cause mild to severe gastrointestinal signs such as vomiting, diarrhea and abdominal pain. Consumption of raw milk from cows, sheep or goats has been incriminated as a source of dangerous bacteria such as *Salmonella, E. coli*, and *Listeria*, which are responsible for causing numerous foodborne illnesses. Campylobacter has also been identified as a source of gastrointestinal symptoms. If consuming raw unpasteurized milk it is important to know the source of the milk and use caution.

Conclusion:

As you can see, it is important to recognize and be aware of these diseases. Most of these diseases result in benign infection where the producer may not even be aware that they have been exposed to a disease agent, but in those cases where severe infection occurs it is important to notify your physician of what you have been exposed to. This will help in identifying the source of the infection and speed up treatment and recovery!

Dr. Beth Johnson is a Staff Veterinarian in the Kentucky Department of Agriculture and has 40 years of experience raising and treating small ruminants. Her family farms in Parksville, KY where she raises Gelbvieh cattle and Boer goats.