



## **PRACTITIONERS APPROACH TO OVINE ABORTION**

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### **CHANGES IN THE INDUSTRY**

As the sheep industry struggles to survive difficult economic times, management programs emphasizing efficiency and net profit become increasingly important to the producer. Producers are finding it necessary to develop a working relationship with their veterinarian due to the restricted availability of animal health care products. This is especially true in the reproductive area where a poor lamb crop could mean economic disaster.

### **MAJOR CAUSES OF ABORTION**

Infectious sheep abortions are primarily the result of four agents:

1. Enzootic abortion caused by *Chlamydia psittici*.
2. Vibrio abortion caused by *Campylobacter* sp.
3. Toxoplasma abortion caused by *Toxoplasma gondii*.
4. Salmonella abortion caused by various *Salmonella* organisms.

Vibro and Toxoplasma abortion are the most common in the Midwest. Chlamydia may be more prevalent in the West but may become a problem in the Midwest in sheep that are imported from the west. Salmonella may occur sporadically anywhere at anytime.

### **Enzootic Abortion**

Enzootic abortion (EAF,) is characterized by abortions, stillbirths and weak lambs. When EAE first appears in a flock, abortion rates may run from twenty-five (25%) to sixty (60%) percent. After the disease becomes endemic, the incidence of abortion may drop to one (1%) to five (5%) percent. Clinical evidence and history would indicate that the low incidence in the Midwest would suggest that the disease is endemic there.

In the West, isolated range flocks become highly susceptible when the disease is introduced. Likewise, when Western ewes are introduced into the Midwest in endemic areas, they are very susceptible and

high abortion rates may occur. Ewe lambs are most susceptible in endemic farms. The organism may cause pneumonia in young lambs.

Initially, it was thought that the disease was spread only through contact with infected fetuses, placentas or vaginal discharges. However, clinical evidence indicates that the disease may be spread by infected sheep constantly shedding the infected agent in the feces or from the lungs.

The organism enters a nonpregnant ewe and lays dormant until the ewe conceives. The organism does not initiate an immune response during the dormant stage. During the infective stage, the ewe develops an immune response that clears the organism from the system.

The Chlamydia species that causes abortion is not associated with conjunctivitis or arthritis.

### **Vibrionic Abortion**

Vibrionic abortion is caused by *Campylobacter fetus* or *Campylobacter jejuni*. *Campylobacter jejuni* being the predominate strain in the United States. Abortion rates usually may be in the twenty (20%) percent area, but may reach eighty (80%) in ninety (90%) percent in some outbreaks. Infected ewes generally recover following abortion and are immune to reinfection. Some ewes may remain persistently infected in the gall bladder and continue to shed bacteria in their feces. Some ewes die of complications such as infected uteri, fetal retentions or peritonitis. Stillbirths and weak lambs are also common. *Vibrio* abortion in sheep is not venereal. Ewes are infected by oral ingestion.

### **Toxoplasmosis Abortion**

Toxoplasmosis along with Vibrionic abortion are the most common causes of abortion the Midwest. *Toxoplasma* abortion is caused by *Toxoplasma gondii*, a protozoan which causes coccidiosis in cats. *Toxoplasma* abortion in ewes follows ingestion of feed or water which has been contaminated with oocyst-laden cat feces. Toxoplasmosis generally does not cause clinical symptoms or detrimental effects in open healthy ewes. In stressed ewes and immunosuppressed ewes, neurological symptoms and death may occur.

The result of Toxoplasmosis in pregnant ewes varies with the age of the fetuses when the ewe is infected. Infection in the first two months of gestation results in embryonic death and reabsorption; infection in mid gestation results in abortion and infection. Infection in the last trimester of gestation results in abortions, stillbirths, mummies or weak lambs.

Flock abortion losses attributable to *T. gondii* can involve from five (5%) to fifty (50%) percent of the ewe flock, with typical losses averaging fifteen (15%) to twenty (20%) percent of the lamb crop.

### **Salmonella Abortion**

Salmonella abortion is a distant fourth in frequency as a cause of abortion, but probably occurs more

often than recognized. The two major factors determining whether a pregnant ewe will abort from Salmonella are stress on the ewe and the number of Salmonella bacteria the ewe ingests. Abortions may occur earlier in gestation but are most common in the last month of gestation. Abortion rates can approach seventy (70%) percent. Most of the ewes show diarrhea and some will die from metritis, peritonitis and septicemia. Healthy lambs may also contract the disease and die.

## **CLINICAL APPROACH TO OVINE ABORTION**

Dealing with ovine abortion should be predicated on two approaches:

1. Prevention of the four major causes of ovine abortions.
2. Aggressive therapeutic methods in the face of an outbreak.

With the similarity of symptoms and the time delay of establishing a cause and the possibility of mixed infections, it is critical to begin aggressive therapeutic regimens while confirming a diagnosis.

## **PREVENTION**

1. Use an effective vaccination program. In our current industry with variable supplies of vaccine this statement is more difficult than it should be. Currently, there is a vaccine for Chlamydia (Chlamydia psittici bacterin, Colorado Serum). Label directions call for a primary vaccination 60 days before breeding and a booster 30 days prior to breeding. There is also a vaccine for Vibrio (Campylobacter fetus bacterin, Colorado Serum). Label directions require a primary vaccination 30 days prior to breeding and a booster in midgestation. Both vaccines have had unreliable supply problems so it is important to have the vaccine well before breeding.
2. Once ewes are yarded, feed 15 to 30 mg. Of monensin per head, per day.
3. Feed 200 mg. of chlortetracycline per head, per day the last six weeks of gestation.
4. DO NOT feed on the ground or allow sheep to drink from stagnant fecal contaminated pools.
5. Prevent contamination of feed and water with feces of rodents, birds and cats. Neuter cats and maintain a stable adult cat population.
6. Maintain first lambing ewes as a separate unit.
7. Maintain purchased replacement ewes as a separate unit.
8. Avoid stressing the sheep. Avoid crowding and unsanitary facilities.
9. Dispose of placenta and dead or aborted lambs immediately. Do not mix ewes that have aborted with pregnant ewes.
10. Do not bed pregnant ewes with bedding from lambing area.

## **THERAPEUTIC METHODS IN THE FACE OF AN OUTBREAK**

1. Submit aborted fetuses and placentas to a diagnostic laboratory. Specimens should be sent to a laboratory which has experience in identifying the infectious agents. It is crucial that several

specimens be submitted periodically throughout the abortion storm. This is necessary because more than one agent may be contributing to the total loss.

2. Immediately begin feeding 500 mg. of chlortetracycline per head, per day, for five days, then reduce to 250 mg. If an outbreak is severe, inject all ewes with long acting tetracycline (LA 200) at the rate of 20 mg/kg per head subcutaneously. In Enzootic abortion outbreaks, long acting tetracycline injections need to be repeated every 14 days.
3. If not already doing so, immediately begin to feed 15 to 30 mg. of rumensin per head, per day.
4. Isolate aborting ewes from the rest of the flock.
5. Discontinue feeding on the ground and check for contamination of feed supplies.
6. If Salmonella is involved, ampicillin is the drug of choice for injection at the rate of 5 mg/pound of bodyweight. Spectinomycin may also be used at the rate of 5 mg/pound of bodyweight per day for three days.

WARNING: All four of the infectious agents that cause abortions in sheep are zoonotic. Pregnant women should stay out of the lambing bam.

With the loss of a Chlamydia vaccine a few years ago we have seen an increase in the number of flock experiencing abortion problems. 1999 was the first year that we have had the vaccine back and at this time it appears to be performing well in the field. We anticipate confidence in this vaccine however field results over the next few years will be the true test. We have seen some Campylobacter jejuni abortion outbreaks that were not effectively prevented by the Campylobacter fetus bacterin. These flocks have responded well to antibiotic therapy at the beginning of the abortion storm.

Therapy in the face of a Vibrio (Campylobacter) outbreak can be difficult as there are a number of isolates that are resistant to tetracycline. In these flocks Albon (Sulfadimethoxine) in the drinking water has been effective.

Monensin (Rumensin) and Decoquinatate (Deccox) have both shown protection against Toxoplasma. Monensin is effective at 15 to 30 mg/hd daily and Deccox is effective at 140 mg/150 pound ewe daily. The Deccox dosage is four times the level approved level for coccidiosis control. Feeding either Rumensin or Deccox at these levels has not been approved by the FDA. From an economic standpoint Rumensin is more cost-effective than Deccox. Using Lasalocid to control Toxoplasma has not been effective.

## **Summary**

There are four major causes of abortions. Through the use of available vaccines, feed grade or water antibiotics and smart sanitation sheep producers can minimize their risk for abortions, maximize their lambing percentage and improve the general reproductive efficiency of their flock.