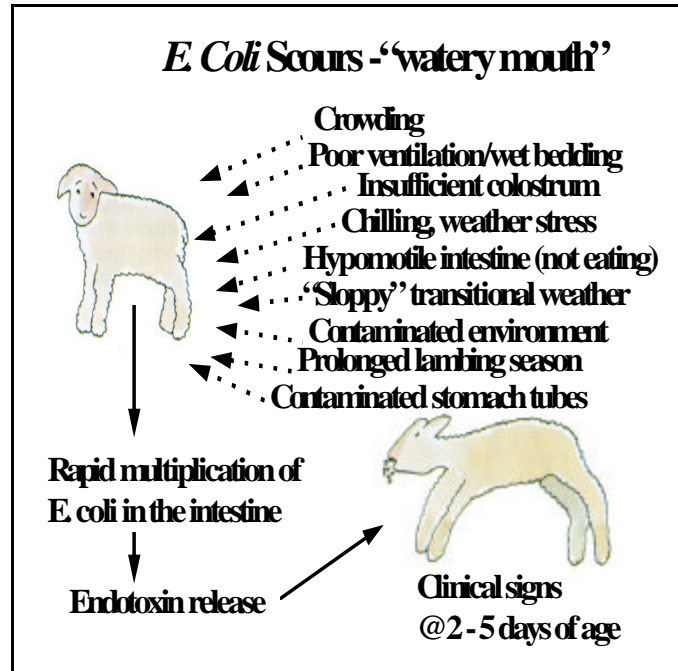


Sloppy Spring Weather Produces Its Own Unique Set of Health Problems

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Unusually warm and wet February and March weather often launches several lamb diseases that typically don't play a major role in lamb loss in cold weather lambing operations. *E. Coli* scours ("watery mouth") and liver abscesses ("naval ill" & "joint ill") are both opportunistic diseases associated with sloppy environmental conditions and poor lambing barn sanitation.

They become common in winter and spring lambing systems when bacterial contamination of the lambing barn is magnified by: 1) warm wet weather, 2) a prolonged lambing season - typical of winter lambing operations, 3) crowding, 4) poor ventilation and resulting wet bedding, 5) insufficient intake of colostrum, 6) chilling & weather stress, 7) transitional winter/spring weather, and 8) the common use of contaminated stomach tubes, lamb bar nipples and lambing pens. While all of the above eight issues are important in establishing bacterial infection in either the digestive tract or umbilical stump of individual newborn lambs, *lambing barn sanitation and maintaining a clean, dry environment for newborn lambs* are probably the two key issues related to preventing flock-sized problems.



***E. coli* scours** generally occurs as a diarrhea problem in two to four-day-old lambs. Producers usually complain that apparently healthy lambs scour suddenly, go off feed, become depressed and die. Depending upon the progression of the disease, the rectal temperature of affected lambs may or may not be elevated. Dehydration, coma and death usually occur within 12-24 hours following the onset of clinical signs of scours. However, in some acute cases, lambs may not survive the initial barrage of *E. coli* endotoxin long enough to develop clinical diarrhea. Death usually results from a combination of severe dehydration (15-20%) and the affect of powerful *E. coli* endotoxins on various organ systems. Occasionally, these endotoxins may affect the brain, causing neurological signs. Lambs affected with *E. coli* often have decreased gut motility, resulting in a painful, slightly bloated appearance to the abdomen and a "sloshing" or "rattling" sound of the intestinal contents when the lamb is shaken (somewhat like water "sloshing" around in a half filled water balloon or a pair of waders). Lambs also salivate (bubbly wet appearance around the lips) and have a cold mouth - thus the common name "watery mouth". *Due to the acute nature of E. coli scours and the tissue damaging affect of endotoxins on organ systems, treatment is often unrewarding. Producers are best served emphasizing prevention in*

the remainder of the lambs that have not been born.

Lambs dying from *E. coli* scours generally have a thin, fetid, whitish colored diarrhea staining the buttocks and hocks. Postmortem exam usually reveals thin, flaccid, fluid filled loops of bowel with segments that often appear reddened (inflamed) or slightly reddish-purple in color. Both *Clostridium perfringens* type-C and type-D deaths in very young lambs and intestinal torsion or twists may appear similar. However, bowel discoloration from clostridial diseases is usually more pronounced than with scours and generally involves the abomasum and upper small bowel in lambs that are just several days old. Intestinal twists or torsion are usually limited to a well demarcated segment of intestine and most commonly occur in artificially reared lambs of this age.

Treatment of *E. coli* scours usually involves rehydrating the lamb with oral, subcutaneous or intraperitoneal fluids and treatment with appropriate antibiotics. If lambs are still standing, mildly depressed and mildly dehydrated (5%), they can be tubed (orally) with the same oral fluids marketed for rehydration of scouring calves. In cases of severe dehydration (10% to 15%), lambs can be injected subcutaneously (under the loose skin over the shoulders or flank) or intra peritoneally (similar technique as in starvation lambs) with ***sterile lactated ringers solution or normal saline***. **Caution** - *do not use the same concentrated 20% dextrose solution recommended for treating starvation lambs to rehydrate scouring lambs. It will further dehydrate the lamb.* Volume subcutaneous injections of fluid should be split between several sites. For those not familiar with subcutaneous injections of fluid, they will leave a large fluid mass under the skin that will resolve as the fluid is absorbed.

***E. coli* - Treatment & Prevention**

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| <ul style="list-style-type: none">• Standing/depressed<ul style="list-style-type: none">– 5% dehydrated– oral fluids & antibiotics• Sternal/depressed<ul style="list-style-type: none">– 10% dehydrated– IP or SQ fluids & antibiotics• Comatose<ul style="list-style-type: none">– 15% dehydrated– IP fluids, usually die | <ul style="list-style-type: none">• Prevention<ul style="list-style-type: none">– Routine antibiotic treatment day 1,2 & 3– Sanitation– Increase bedding– Relocate lambing pens– Adequate colostrum– Assure nursing– Decrease crowding– Ventilation/moisture– Vaccinate ewes? |
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Replacement fluid amounts can be roughly calculated as follows. Newborn lambs are about 80% water (we'll use 100% water for easier calculations) and one pint of water (roughly 500 mls) weighs about one pound. Therefore, a 10 lb lamb that is 5% dehydrated would need about ½ lb of replacement fluids (Example if 5% dehydrated: $.05 \times 10 \text{ lbs} = .5 \text{ lbs}$) or roughly 250 mls of solution to return the body balance to a more normal situation. If you don't like calculations use at least 250 mls/10 lb lamb for lambs that are still standing and at least 500 mls/10 lb lambs for lambs that are down. You may have to spread the application over several hours.

Antibiotics are used for both the treatment and prevention of *E. coli* scours in lambs, but few are approved for this specific use. Use of these products requires a strict client/patient/veterinarian

relationship with your local practitioner. Personal choices would include spectinomycin oral pig scours medicine (sold in a pump format as Spectam for scouring pigs @ 1 pump per 10 lbs of body weight) or oral trimethoprim/sulfa combination products (such as Bactrim pediatric syrup orally @ 5 cc/10 to 20 lb lamb or 240 mg Tribissen tablets @ 1 tablet per 10 to 20 lb lamb). Please consult your local veterinarian for product formulations and doses. Once treatment is initiated it should be continued 2X daily for 2 to 4 days.

Prevention of *E. coli* scours in lambs should really be the key focus for any flock. While weather issues are difficult to control, management changes need to involve sanitation issues that prevent oral exposure of newborn lambs to *E. coli* organisms (contaminated teats, bedding etc.). Clean dry bedding should be increased (even to the excessive point in sloppy weather) - especially in lambing pens where the organism is most likely to be concentrated. When outbreaks occur, if possible, lambing pens (source of infection) should be relocated to other cleaner areas of the barn. This helps break the cycle of contamination. Crowding and associated ventilation problems also increase moisture content in the bedding. Additionally, pregnant ewes should also be separated from lactating ewes and scouring lambs - to further dilute the organism. Prolonged lambing season and crowding also concentrate *E. coli* in the barn environment. Producers should also be sure lambs receive adequate amounts of colostrum and milk early in life. Caution should also be used to prevent common sources of infection, such as dirty stomach tubes or lamb bar nipples - clean daily.

When flock outbreaks occur, routine use of antibiotics to newborn lambs may be necessary to prevent extensive losses and to provide a safety web until management changes can be implemented. In outbreak situations newborn lambs are generally treated with prophylactic doses of antibiotics (spectinomycin or trimethoprim/sulfa combinations are commonly used - same doses as treatment, but only 1X daily - as a once daily treatment on day one, day two and day three of life. This approach affords treatment *before* clinical signs develop. Due to the severity of the disease, waiting to initiate treatment until scours develops is usually a losing proposition. If scouring from *E. coli* occurs later in life, then timing of the prophylactic antibiotics may need to match the outbreak timing. However, *E. coli* scours is usually limited to the first week of life. In contrast, coccidiosis is usually implicated after lambs reach 3 to 4 weeks of age.

The other disease of “sloppy” conditions in the lambing barn

Omphalophlebitis, naval ill, joint ill or liver abscess syndrome in lambs are all terms used to describe infection of the umbilical cord of newborn lambs that spreads to various areas of the body. Much like *E. coli* scours in lambs, this disease is influenced by many of the same sanitation and environmental factors affecting scours. Highly contaminated bedding and warm, wet weather all create an explosion of bacteria that are available to infect the moist, umbilical cord of newborn lambs. This infected umbilical cord connects directly with the liver of the newborn, creating a direct route to liver abscess formation and spread to joints and other organs of the body - all at a time when the lamb is solely relying on colostrum for protection.

Liver abscesses and joint ill all are initiated at birth, when the wet umbilical stump contacts

the dirty environment of the lambing barn. However, clinical signs do not become obvious until lambs are usually 10 - 20 days old. Signs of liver abscess are rather vague and generally look like a starvation lamb, except, the lamb often has an elevated temperature, is depressed, and may act painful in the abdomen. Pain is usually due to the adhesions related to liver abscess and the associated peritonitis. As the lamb tries to walk and stretches to nurse, these adhesions tug and pull on painful portions of the abdomen. If infection has spread to various joints, lameness is often noted and heat and swelling are observed around the infected joints. Lambs with infected joints often have concurrent liver abscesses - both are difficult to treat.

Like scours, flock problems with liver abscesses should be aimed at prevention - not treatment. Management for better sanitation includes all of the same issues related to scours prevention. Additionally, the umbilical stump should be dipped in 7% strong tincture of iodine as soon after birth as possible. However, make sure the iodine is fresh and change at least daily. Teat dip containers used for milking cows work well for dipping navels. In problem flocks, long acting injectable antibiotics (48 hr penicillin or tetracycline products) administered subcutaneously on day one and day three after birth may help prevent further losses. Again, like scours prevention, waiting to treat lambs until clinical signs develop is too late.