



## What is it?

Escherichia coli, more commonly known as E. coli, is a Gram-negative rod-shaped bacterium. It is most commonly found in the lower intestine of warm-blooded organisms, like birds and mammals. There are many different E. coli strains, over 700, referred to as serotypes. Most strains are harmless and part of the normal flora of the gut and can benefit their hosts by producing vitamin K and preventing colonization of the intestine with pathogenic (disease causing) bacteria. If animals ingest virulent strains of E. coli and it travels outside of the digestive tract into other organs, it can cause an animal to become septic and increase morbidity. When E. coli is seen in fawns it disrupts normal absorption of nutrients and animals can quickly become dehydrated and acutely ill.

## What Symptoms are typically seen in Cervid?

The main symptom of an animal infected with E. coli is scours, which is simply defined as diarrhea. Animals with a bacterial scours' infection have loose, watery stool and appear to be lethargic, possibly going off feed.

At times, pneumonia is seen in animals with E. coli, but generally it is thought that when an animal has E. coli their immune system is compromised, and they are extremely susceptible to other diseases. Fawns are the most susceptible to E. coli and much care must be taken in the early phases of their life.

Important items to look for and achieve, especially in fawns:

- Mother raised fawns:
  - o Vaccinate adult does prior to fawning
  - o Generally, mother raised animals do not experience E. coli until a few weeks of age, but you must pay careful attention between 1 and 21 days
  - o “Over mothering”-when Mom is really overly licking their fawn, more than normal, this could be a sign the fawn is sick, and Mom is doing her best to keep her fawn clean.
  - o Walk pens and as soon as fawn is up, proceed to their bed area and check stool, E. coli infected stool will be watery, possibly have blood in it and have a strong, putrid smell.
  - o Daily observe the fawn’s rear end with good binoculars, making sure they are dry and clean. Fawns should not be very wet and slick looking and there should not be an abundant number of flies near them.
  - o At 10-14 days, fawns should be somewhat “filled out” and not look thin or weak, if they run from you upon approach, they should have a good “bounce” or “hop” to their gait.

- Bottle fed fawns:
  - o Make sure adult does are vaccinated and even the bottle-fed fawns are able to receive colostrum the first 1-3 days of life.
  - o Stool can vary with different milk replacer's, but consistency should not be runny
  - o Smell will be very strong and putrid when infected with E coli.

## How is it spread?

Fecal-oral transmission (FOT) is the major route through which pathogenic strains of the bacterium cause disease. Cells are able to survive outside the body for a limited amount of time, which makes them ideal indicator organisms to test environmental samples for fecal contamination. However, there is a growing body of research examining environmentally persistent E. coli able to survive extended periods outside of a host. It is wise to obtain some fecal samples of your adult animals prior to fawning, to see if any E. Coli is present and to appropriately treat if it is on farm.

## Disease Management

The most cost-effective way of diagnosing a possible E. coli infection is through a fecal examination. The lab may be able to “type” the strain of E. coli present which will help you and your veterinarian come up with a proper treatment plan. Testing some fecal samples prior to fawning provides a good assessment as to whether E. coli is present and which strains. A comprehensive, whole health management plan will assist in having health animals. This includes regular vaccines, worming and maintenance of animals and pastures. When assessing your pasture try and keep feed and water in areas that are dry. Wet areas will facilitate bacteria to grow. Rotating locations of feeders and waterers is always a good practice. Overcrowding is a sign of poor management, as disease will quickly spread through animals. Keeping the number of animals per acre spread out will decrease spread of disease and also decrease stress on the animals. If fawns are identified with E. coli separate them from other fawns and take great care to not cross contaminate in handling or bottle feeding. Start to “flush” the fawn for 12-24 hours with an electrolyte at feeding times, in the place of the milk or milk replacer. Do not administer a gel electrolyte, it may cause blockage. With a veterinarian's guidance you may also need to administer an antibiotic that will kill the specific strain of E. Coli best. Take care to only try one thing at a time and take meticulous notes on days and time of all items administered. This will help you and your veterinarian assess what is working or not working.

## Points to Remember

- Keep animals on a vaccination and worming protocol in conjunction with your veterinarian to obtain optimal herd health
- Complete some fecal tests prior to fawning and have any strains of E. coli typed, if possible, to see what you may be dealing with in your adults and treat if needed
- Keep pens clean, eliminate areas of standing water, moving feeders and waterers if needed
- Watch fawns very closely, especially during crucial early days until around 21 days of age
- Do not overcrowd pastures and pens, overcrowding quickly spreads disease
- Separate infected animal(s) to decrease spread

Vaccination is key to a healthy herd, EcoVac covers Escherichia coli

