

## Diseases transmissible between dogs and livestock in the UK

There is a significant risk of transmission of infectious diseases between dogs that walk or work on farmland, and livestock. These diseases threaten livestock health, welfare and productivity, and some can cause illness in dogs. Farmers and dog owners must be aware of the risks to their animals, and can take a number of precautions to reduce the incidence of disease transmission between the two species.

### Neosporosis

Neospora is a protozoan parasite transmitted between dogs and cattle, and is the leading cause of abortion in cattle in the UK (AHVLA 2012a). Dogs become infected with Neospora after consuming the placenta (cleansing) or post-calving discharges of an infected cow, and subsequently begin to shed Neospora eggs in their faeces. Eggs remain a source of infection in the environment for up to six months.

Cattle consume the Neospora eggs on pasture, in feed troughs or in water contaminated by the infected dog faeces. The infection causes abortion in cattle, and infected cows are 3-7 times more likely to abort than uninfected cows (Moredun 2012). Placenta and abortion materials are then a source of infection to other dogs, propagating the lifecycle of the parasite.

Although adult dogs rarely exhibit signs of the disease, infected pregnant bitches can transmit neosporosis to their pups causing severe neurological signs and death. Because adult dogs stop shedding the parasite after approximately 2 weeks, testing dogs for Neospora is not usually recommended; however puppies exhibiting signs of illness should receive veterinary attention.

Neosporosis causes abortions, reduced milk yields, impaired growth rates and prolonged calving intervals in cattle, and as such the disease represents a considerable challenge to the UK cattle industry. With no effective treatment or vaccine currently available, diagnosed cattle either remain in the herd causing significant production losses or are culled. The parasite is estimated by DairyCo to cost the average herd £3000 per year (Moredun, 2013).

#### Neosporosis: key facts

- Neosporosis is responsible for around 15% of infectious bovine abortions (AHVLA 2012b), and therefore is the leading cause of abortion in UK cattle.
- 90% of dairy herds in the southwest of England have been infected with the Neospora parasite (Woodbine et al 2008).
- Between 0.5% and 30% of dogs have been exposed to Neospora worldwide (University of Liverpool, no date).

## Sarcocystosis

Sarcocystosis is protozoan disease affecting a number of livestock species and carnivores. A disease cycle involving sheep and dogs commonly occurs in the UK. Following the ingestion of infected sheep meat, dogs begin to shed Sarcocystis eggs in their faeces, which can contaminate pastures, feed and water sources. Sheep then ingest the eggs and the parasite infects the muscle tissue, acting as a potential source of infection for other dogs that consume the meat.



**Figure 1:** Image of sheep oesophagus infected with Sarcocystis (University of Edinburgh 2007)

### Sarcocystosis: key facts

- In some parts of the world, 100% of sheep have been exposed to the Sarcocystis parasite (Fayer and Dubey 1989).
- In one study, 39.3% of farm dogs were shedding Sarcocystis eggs in their faeces (Leguia and Herbert 1979).

In the majority of cases, sarcocystosis is a benign disease with no obvious

clinical signs in sheep and dogs. However in pregnant sheep the disease can cause abortion, and neurological signs can also affect up to 75% of sheep in susceptible flocks with lambs being the most vulnerable to disease. Severe infections can be fatal. Other impacts of the disease are associated with reduced growth rates and the condemnation of infected carcasses in the abattoir.

The prevalence of sarcocystosis in sheep and dogs is unknown in the UK, but it is thought to be common and underreported. In some parts of the world however, 100% of sheep have been exposed to the parasite (Fayer and Dubey 1989), and in one study, Sarcocystis eggs were found in the faeces of 39.3% of farm dogs (Leguia and Herbert 1979). As there is no effective treatment or vaccination for this disease, dog owners and sheep farmers should help to prevent livestock losses due to this parasite

## Tapeworms

Sheep are the 'intermediate hosts' of four species of tapeworm, all of which have the domestic dog as their final host. This means that when dogs consume sheep meat infected with the parasite, they begin to shed the worm eggs in their faeces. When sheep consume pasture or feed contaminated with worm eggs, the parasite forms cysts in their organs, which can subsequently act as a source of infection for other dogs that eat the carcass.



**Figure 2:** Tapeworm cysts in a sheep carcass (Ovis management, 2014)

### Tapeworms: key facts

- Infestation with some species of tapeworms is as high as 50% in young sheep (Bates 2013).
- Dog tapeworms cost the English sheep industry more than £6 million in 2012 in abattoir condemnations (EBLEX 2013).

The development of worm cysts can cause severe clinical disease in sheep, including neurological signs, poor growth rates and occasionally death. Economic losses are caused by carcass condemnation at slaughter. Tapeworms usually cause no clinical illness in dogs, so are difficult to detect; however tapeworm segments (that look like rice grains) can sometimes be seen around the anus, and may be accompanied by excessive grooming and itching. In rare and severe cases, the worms can cause intestinal obstruction in dogs, and in addition, one of these tapeworms presents a risk to people. Tapeworms in dogs can be controlled through regular use of a suitable wormer, as advised by your vet.

## Reducing risk of diseases in dogs and livestock

Dog owners and farmers can mitigate the risks of all of these diseases in dogs and livestock, using a number of simple measures:

1. **DISCOURAGE SCAVENGING:** Do not allow dogs to eat fallen stock, after-birth or birth fluids from livestock.
2. **CLEAN UP AFTER YOUR DOG:** Always collect and remove your dogs' faeces during walks.
3. **REGULAR WORMING:** Regularly worm your dog with a suitable treatment as recommended by your vet.
4. **SELECT A SUITABLE DIET:** Be aware that feeding a bone and raw food (BARF) diet to your dog can present disease risks to both your dog and livestock. Discuss other dietary options with your vet and ensure that any meat and offal is thoroughly cooked before feeding it to your pets.
5. **FARM HYGIENE:** Farmers should promptly and hygienically dispose of fallen stock and after-birth and should keep livestock feed covered and locked away to prevent access by dogs, other pets and wildlife.

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