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Veterinary Laboratories Ltd
'The Quality Clinical Pathology Service'

Monitoring for Parasitic Gastroenteritis

Parasitic gastroenteritis (PGE) is probably the most important disease affecting the productivity of young stock and a variety of species of nematode may cause significant clinical disease in cattle and sheep. In both species, young stock in their first grazing season on contaminated pasture are most at risk. With increasing temperatures through the summer, numbers of infective larvae on the pasture may build up rapidly.

In addition, autumn born calves may not develop sufficient immunity before housing and therefore are at risk of succumbing to PGE in their second grazing season. Housed calves also may succumb to type 2 ostertagiasis, when infective larvae present on the pasture in the autumn come out of a phase of arrested development (hypobiosis) in the abomasal mucosa in late winter/spring.

With the increasing development of anthelminthic resistance particularly in sheep it is essential that efforts are made to conserve the efficacy of existing anthelminthics through their appropriate use. A parasite control program can be developed with farmers, key elements of which include checking for efficacy following anthelminthic administration, quarantining bought in stock and treating them with anthelminthics, and grazing management.

Faecal worm egg counts

can be used to monitor the effectiveness of anthelminthic administrations, the need for anthelminthic use (thus helping reduce unnecessary treatments with anthelmnthics that will promote resistance), and to gauge the level of pasture contamination which can be used to help plan grazing later in the season and the following season.

Procedure: gather animals together and let them stand quietly for 10 minutes. Collect a minimum of 5g faeces from each animal to be sampled.

It is not possible to obtain precise information about the numbers of adult worms present for any given worm count as different species of worms produce different numbers of eggs and eggs may be intermittently shed. The count also does not give any information on inhibited larvae (important in type 2 ostertagiasis in cattle) or developing immature stages (particularly important with *Nematodirus battus* in lambs as prepatent infections may be associated with significant disease).

Composite worm egg counts

are a reliable indicator of gastrointestinal parasite burdens and have proved particularly useful in monitoring the need for anthelminthic use in sheep flocks and in checking for anthelminthic resistance. Here, an average worm egg count is obtained which is less affected by e.g. variations in the shedding of worm eggs in different animals.

Procedure: gather animals together and let them stand quietly for 10 minutes. Collect 10 samples of 5g faeces from different animals. Submit each sample separately to the laboratory, so that equal weights of each sample can be used to obtain the average count.

Plasma pepsinogen levels

can be a useful aid to diagnosis particularly in cases of type 2 ostertagiasis in cattle. Pepsinogen levels increase with increasing damage to the abomasal mucosa with the emergence of inhibited larvae, allowing an estimate of the level of infection to be made.

Procedure: Take sufficient blood to allow 0.5 ml serum or heparin plasma to be harvested from each sample.

Total worm counts

on dead or sacrificed moribund lambs (and calves) are also a useful aid to the diagnosis of parasitic gastroenteritis. They are of particular value where pre-patent infections with e.g. *Nematodirus battus* are suspected in lambs, the immature larvae causing significant disease with an absence of worm eggs in the faeces.

Procedure: dissect open the carcase to gain access to the gastrointestinal tract.

Identify the **abomasum** and ligate it at the pylorus and the entrance to the omasum, cut free and the hold over a bucket.

Using a pair of scissors, open the abomasum along the greater curvature and wash the contents thoroughly into the bucket with large quantities of water, paying particular attention to cleaning between the folds of the mucosa.

Make up the contents of the bucket to 4 litres, mix thoroughly in a figure of eight motion and collect two samples of 40mls using universal containers.

Strip the **small intestine** from the mesentery. In lambs this is relatively easy and can be accomplished without any instruments. In calves, the mesentery is more difficult to strip off and a pair of scissors may be needed to remove it.

Drop the small intestine into a bucket and flush out the lumen using a steady jet of water from e.g. a hose, while milking the contents through the length of the intestine. It may prove easier to divide the intestine up into convenient lengths for this process.

Make the contents of the bucket up to 4 litres, mix thoroughly in a figure of eight motion and collect two samples of 40mls using universal containers.

Submit the four universals to the laboratory where worms present will be counted and, where feasible, identified.

Further information

NADIS provides useful parasite forecasts that can be accessed at **www.nadis.org.uk**

SCOPS provides detailed information on the sustainable control of parasites in sheep, which can be accessed at **www.scops.org.uk**

COWS provides detailed information on the sustainable control of parasites in cattle, which can be accessed at **www.cattleparasites.org.uk**

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