



J.M. van Andel, DVM

Provinos
Schapenadviesgroep
The Netherlands

info@provinos.nl

LIVER FLUKE AND RUMEN FLUKE: AN OVERVIEW INCLUDING SNAIL DETERMINATION AND THE UTILIZATION OF THE FLUKE CATCHER (“BOTVANGER”) AT THE CLINIC

Liver fluke (*Fasciola hepatica*) and rumen fluke (*Calicophoron daubneyi*) are trematodes with a snail acting as an interim-host in both their reproductive cycles. While liverfluke is well known in The Netherlands the rumenfluke is much less known. An increase in prevalence of rumen fluke is reported in Western Europe although only light clinical symptoms seem to occur. The reason behind this increase is unknown. However, climate change and higher groundwater levels might have influence on the occurrence of the fluke hosts in its habitat. A short introduction of the reproductive cycle of the parasites and their interim-hosts will be discussed.

In order to prevent infection of the animals with flukes it is important to recognize potential habitats of snails (hosts) and to monitor the presence of snails in these areas. The population of the snail depends on temperature and rainfall and varies over the years and the seasons. In order to take preventive measures against both flukes it is important for the farmer and the vet to gather information on a regular basis. Only a short training is needed to recognize the habitat of the snail, as well as to recognize plant-indicators and snail types. During this presentation the determination of different snail types will be discussed. By scanning farmers’ fields on the presence of snails and combine these data with the scheduled utilization of pastures, spots of potential fluke infestation can be identified and preventive measures defined.

For ruminants determination of chronic infestation with the (adult) liver or rumen fluke can be done by blood samples, milk tank research (liverfluke) or faecal samples. Faecal samples can be investigated by the veterinary clinic using the “Botvanger” (translated Fluke Catcher, a modified Dorsman method) or the Centrifugation-Sedimentation-Flotation (CSF)-technique. Only a small number of veterinary clinics use the CSF due to its low sensitivity and poor feasibility at clinic level. The Botvanger is more and more appreciated as a welcome alternative. Moreover, with the Botvanger, differentiation between rumen fluke and liver fluke can easily be made, using a drop of methylene blue stain.

The Botvanger will be demonstrated during the presentation. It consists of three sieves with different mesh sizes. After thoroughly rinsing the faecal sample fluke eggs are collected from the third sieve and after sedimentation the sample is examined by microscope. This method has many advantages. It is relatively fast and simple, it’s cheap and it has a high sensitivity. Only tap water is being used for rinsing (no zinc-sulphate). Therefore the fluke eggs do not “collapse”, nor decolorize and are easy to be recognized, differentiated and counted. The Botvanger is considered highly sensitive with a detection limit of 1,5 EPG for sheep (pers.com.. H. Ploeger, Faculty of Veterinary Medicine, Utrecht University).

An infection with liverfluke in cattle and horses results in a much lower production of eggs and these animals produce a larger quantity of faeces. However, due to the property of the faeces, larger quantities can be rinsed resulting in a relatively clear view under the microscope. This results in an even higher sensitivity of the test for these animals, in comparison to sheep.

In most cases the fluke test is used only for the detection of presence of eggs in the faeces i.e. it is a qualitative, at most a semi quantitative test. Therefore the Botvanger can play an important role for regular testing at the veterinary clinic. Moreover the Botvanger contributes to more justified treatments.

Table 1: Comparison of types of investigation on fluke eggs.

	Botvanger	CSF*
Recognition of eggs in the sample	good	moderate
Clarity of the sample	good	good
Quantity of faecal material (grams) sheep	up to 8	not applicable
Sensitivity	good	moderate
Average duration of the test (minutes)	15-20	10
Feasibility at clinic or farm level	good	poor

* Centrifuge/sedimentation/flotation method with sucrose or zinc sulphate